

SECTION I - BARRIER

SHEET NO. NAME

B-L (2001)	– BARRIER LEGEND
B-I	– GUARDRAIL APPLICATIONS
	(2002) - 1 PLANS - (TYPE 1, TYPE 2, AND TYPE 3)
	(2004) - 2 ELEVATIONS AND SPLICE DETAIL
	(2002) - 3 SECTION VIEWS
	(2002) - 4 GRADING FOR GUARDRAIL END TREATMENT, TYPE 1
	(2002) - 5 GRADING FOR GUARDRAIL END TREATMENT, TYPE 2
	(2002) - 6 GRADING FOR GUARDRAIL END TREATMENT, TYPE 3
B-2 (2002)	– GUARDRAIL OVER CULVERTS, TYPE 1
B-3 (2002)	– GUARDRAIL OVER CULVERTS, TYPE 2
B-4 (2001)	– CURVED GUARDRAIL SECTION
B-5 (2002)	– END ANCHORAGE
B-6	– BURIED END SECTION
	(2002) - 1 BURIED END SECTION
	(2002) - 2 BURIED END SECTION
	(2002) - 3 POST, CONCRETE BLOCK, & RUBRAIL ANCHOR DETAILS
B-7	– GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1
	(2002) - 1 PLAN, ELEVATION, AND SECTIONS
	(2001) - 2 WOOD BLOCKOUT, RUB RAIL WOOD BLOCKS, BEARING PLATE, RUB RAIL TO BARRIER CONNECTION DETAILS
	(2001) - 3 BENT PLATE RUB RAIL DETAILS
B-8	– GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 2
	(2002) - 1 PLAN, ELEVATION, AND SECTIONS
	(2001) - 2 NOTES, BENT RAIL DETAILS, BLOCK SCHEDULE
B-9 (2002)	– GUARDRAIL TO BARRIER CONNECTION, EXIT TYPE
B-10 (2002)	– BRIDGE RAIL RETROFIT, TYPE 1
B-II	– BRIDGE RAIL RETROFIT, TYPE 2
	(2002) - 1 PLAN, SECTION A-A, BASE PLATE DETAIL
	(2001) - 2 BASE PLATE DETAIL AND STEEL GUARDRAIL POST
B-12 (2001)	– BRIDGE RAIL RETROFIT, TYPE 3
B-13	– HARDWARE
	(2004) - 1 W-BEAM DETAILS
	(2004) - 2 W-BEAM STEEL POST AND OFFSET BLOCK
	(2004) - 3 W-BEAM TERMINAL CONNECTOR
	(2004) - 4 THRIE BEAM DETAILS
	(2004) - 5 THRIE BEAM STEEL POST AND OFFSET BLOCK
	(2004) - 6 W-THRIE BEAM TRANSITION SECTION
	(2004) - 7 WOOD BLOCK, SOIL PLATE, SHORT WOOD BREAKAWAY POST, STEEL TUBE, LONG WOOD BREAKAWAY POST
	(2004) - 8 SWAGED CABLE AND RELATED HARDWARE ASSEMBLY
	(2004) - 9 REFLECTORIZED WASHER AND BEARING PLATE DETAIL
	(2004) - 10 GUARDRAIL BOLT & RECESSED NUT
	(2004) - II 5/8" (16) HEX BOLT, HEX NUT, & STEEL WASHER, HIGH-STRENGTH STRUCTURAL HEX BOLT & HEX NUT
	(2004) - 12 15/16" (24) HEX NUT & STEEL WASHER, 5/8" (16) CARRIAGE BOLT, HEX NUT, & STEEL WASHER
	(2004) - 13 GUARDRAIL MOUNTED RAIL •DETAIL ON HOLD•
B-14	– CONCRETE SAFETY BARRIER (F SHAPE)
	(2001) - 1 TYPICAL CAST IN PLACE OR SLIP FORM CONSTRUCTION
	(2001) - 2 TYPICAL PRE-CAST CONSTRUCTION
	(2001) - 3 SLOTTED PLATE CONNECTION DETAILS



SECTION I - BARRIER (CONT'D)

SHEET NO.	NAME
B-15	— PORTABLE CONCRETE SAFETY BARRIER (F SHAPE)
	(2001) - 1 PLAN, ELEVATION, AND SECTION VIEW •DETAIL DELETED - SEE SPECIFICATIONS•
	(2001) - 2 CURVE SECTION •DETAIL DELETED - SEE SPECIFICATIONS•
	(2001) - 3 TAPERED END SECTION •DETAIL DELETED - SEE SPECIFICATIONS•
	(2001) - 4 TYPICAL REINFORCEMENT DETAILS •DETAIL DELETED - SEE SPECIFICATIONS•
	(2001) - 4 JOINT CONNECTION DETAILS •DETAIL DELETED - SEE SPECIFICATIONS•

SECTION II - CURB & GUTTER

SHEET NO.	NAME
C-1 (2004)	— P.C.C. CURB, P.C.C. CURB & GUTTER, AND HOT-MIX CURB
C-2	— CURB RAMPS
	(2004) - 1 TYPE 1
	(2004) - 2 TYPES 2, 3, & 4
	(2004) - 3 SECTIONS FOR TYPES 2, 3, & 4
	(2004) - 4 TYPE 5
C-3 (2001)	— ENTRANCES
C-4	— CURB OPENINGS
	(2001) - 1 TYPES A, B, & C
	(2001) - 2 TYPES D & E
	(2001) - 3 TYPES F & G

SECTION III - DRAINAGE

SHEET NO.	NAME
D-1	— 6:1 SAFETY END STRUCTURE
	(2001) - 1 DETAIL VIEWS
	(2001) - 2 SCHEDULES
D-2	— 10:1 SAFETY END STRUCTURE
	(2001) - 1 DETAIL VIEWS
	(2001) - 2 SCHEDULES
D-3 (2001)	— SAFETY END STRUCTURE GRATE
D-4 (2002)	— INLET BOX DETAILS
D-5	— DRAINAGE INLET DETAILS
	(2002) - 1 DRAINAGE INLET ASSEMBLY
	(2002) - 2 DRAINAGE INLET FRAME AND GRATES
	(2004) - 3 DRAINAGE INLET TOP UNITS
	(2002) - 4 DRAINAGE INLET COVER SLAB DETAILS
	(2002) - 5 DOUBLE INLET COVER SLAB DETAILS
	(2004) - 6 DRAINAGE INLET 34" (865) x 24" (610) DETAILS
	(2002) - 7 DRAINAGE INLET 34" (865) x 18" (455) DETAILS
	(2002) - 8 LAWN INLET DETAIL



SECTION III - DRAINAGE (CONT'D)

SHEET NO.	NAME
D-6	— MANHOLE DETAILS
	(2001) - 1 BOX MANHOLE ASSEMBLY
	(2001) - 2 ROUND MANHOLE ASSEMBLY
	(2001) - 3 MANHOLE FRAME AND COVER
	(2002) - 4 BOX MANHOLE COVER SLAB
D-7	— JUNCTION BOX DETAILS
	(2002) - 1 JUNCTION BOX ASSEMBLY
	(2002) - 2 JUNCTION BOX COVER SLAB
D-8 (2001)	— PIPE BEDDING
D-9 (2004)	— PERFORATED PIPE UNDERDRAIN

SECTION IV - EROSION

SHEET NO.	NAME
E-1 (2001)	— INCREMENTAL STABILIZATION
E-2 (2001)	— SILT FENCE
E-3 (2001)	— DRAINAGE INLET SEDIMENT CONTROL
E-4 (2001)	— CURB INLET SEDIMENT CONTROL
E-5 (2001)	— STONE CHECK DAM
E-6 (2001)	— SEDIMENT TRAP
E-7 (2001)	— SEDIMENT TRAP, USING DRAINAGE INLET AS OUTLET
E-8	— RISER PIPE ASSEMBLY FOR SEDIMENT TRAP
	(2001) - 1 ELEVATION
	(2001) - 2 TRASH HOOD DETAILS
E-9 (2001)	— EROSION CONTROL BLANKET APPLICATIONS
E-10 (2001)	— RIPRAP DITCH
E-11 (2001)	— TEMPORARY SWALE
E-12 (2001)	— PERIMETER DIKE/SWALE
E-13 (2001)	— EARTH DIKE
E-14 (2001)	— TEMPORARY SLOPE DRAIN
E-15 (2001)	— STILLING WELL
E-16 (2001)	— SUMP PIT, TYPE 1& 2
E-17 (2001)	— DEWATERING BASIN
E-18 (2001)	— GEOTEXTILE-LINED CHANNEL DIVERSION
E-19 (2001)	— SANDBAG DIVERSION
E-20 (2001)	— SANDBAG DIKE
E-21 (2001)	— STABILIZED CONSTRUCTION ENTRANCE
E-22 (2001)	— SKIMMER DEWATERING DEVICE
E-23	— TURBIDITY CURTAIN
	(2001) - 1 FLOATING TURBIDITY CURTAIN
	(2001) - 2 STAKED TURBIDITY CURTAIN
E-24 (2001)	— PORTABLE SEDIMENT TANK
E-25 (2001)	— TURF REINFORCEMENT MAT APPLICATIONS



SECTION V - MISCELLANEOUS

SHEET NO.	NAME
M-1(2001)	— RIGHT-OF-WAY FENCE
M-2 (2001)	— CONCRETE MONUMENT
M-3 (2004)	— REMOVABLE BOLLARD
M-4 (2004)	— BIKE RACK
M-5 (2004)	— WOOD RAIL FENCE
M-6 (2004)	— PATTERNED HOT-MIX OR CONCRETE & BRICK PAVER

SECTION VI - PAVEMENT

SHEET NO.	NAME
P-1	— P.C.C. PAVEMENT
	(2001) - 1 SLAB PLAN (WITH DOWEL AND TIE LOCATIONS)
	(2004) - 2 JOINT AND SEALANT DETAILS
	(2001) - 3 W BOLT, HOOK BOLT, DOWEL & TIE BAR
	(2001) - 4 DOWEL SUPPORT BASKET
	(2001) - 5 DOWEL & TIE BAR PLACEMENT TOLERANCES
P-2	— P.C.C. PAVEMENT PATCHING
	(2001) - 1 FULL DEPTH PATCH, PLAN VIEW
	(2004) - 2 FULL DEPTH PATCH, SECTION VIEWS
	(2004) - 3 FULL DEPTH PATCH, SEALANT DETAILS, GROUT RETENTION DISK, AND DOWEL BAR
	(2001) - 4 FULL DEPTH PATCH, DOWEL BAR PLACEMENT TOLERANCES
	(2001) - 5 PARTIAL DEPTH PATCH, PLAN AND SECTION VIEWS

SECTION VII - TRAFFIC

SHEET NO.	NAME
T-1 (2002)	— CONDUIT JUNCTION WELL, TYPES 1,2, AND 3
T-2 (2002)	— CONDUIT JUNCTION WELL, TYPE 4
T-3 (2002)	— CONDUIT JUNCTION WELL, TYPE 5
T-4 (2004)	— CABINET BASES (TYPES "M" AND "P")
T-5	— POLE BASES
	(2002) - 1 ROUND BASE, SQUARE BASE
	(2002) - 2 TYPICAL SECTION (BASES 1, 2, 2A, 2B, 3, 3A, 3B, AND 7), TYPICAL SECTION (BASE 4), TYPICAL INSTALLATION (BASES 1, 2, 2A, 2B, 3, 3A, 3B, 4, AND 7)
	(2002) - 3 TYPICAL SECTION (BASES 5 AND 6), ANCHOR BOLT DATA CHART AND DETAILS
T-6 (2002)	— SPECIAL POLE BASE
T-7 (2002)	— SIGN FOUNDATION
T-8 (2002)	— LOOP DETECTOR TO CONDUIT JUNCTION WELL CONNECTION
T-9 (2004)	— TYPE #1 LOOP DETECTOR
T-10 (2004)	— TYPE #2 LOOP DETECTOR

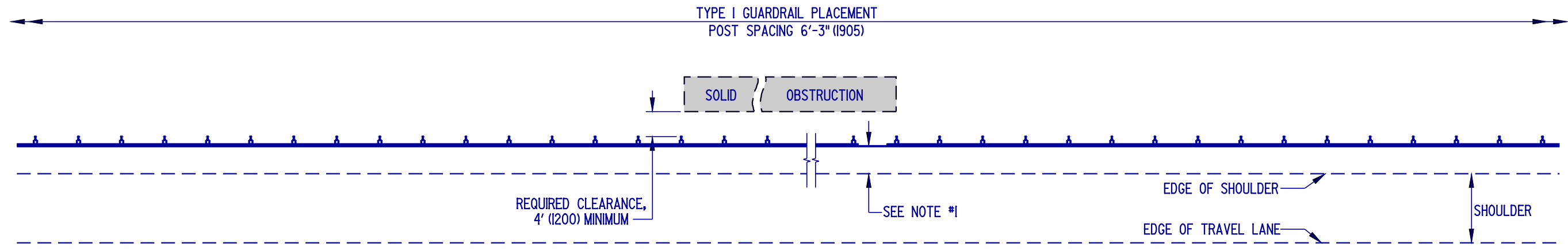


SECTION VII - TRAFFIC (CONT'D)

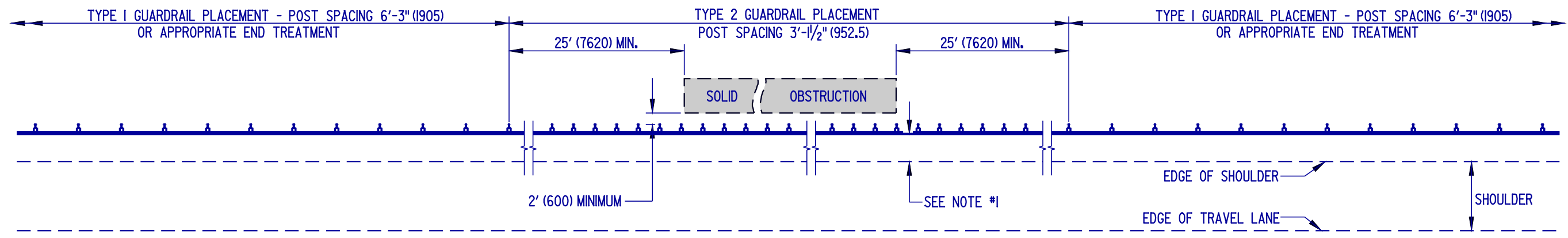
SHEET NO.	NAME
T-II	— MESSENGER WIRE ATTACHMENT (2004) - 1 INTERMEDIATE MESSENGER WIRE ATTACHMENT ON WOOD POLES (2004) - 2 ANGULAR INTERMEDIATE MESSENGER WIRE ATTACHMENT
T-I2	— MESSENGER WIRE ATTACHMENT (2004) - 1 SPAN WIRE ATTACHMENT BETWEEN POLES (2004) - 2 DEAD END MESSENGER WIRE ATTACHMENT
T-I3	— CONDUIT JUNCTION WELLS (2004) - 1 TYPE 4 (2004) - 2 TYPE 7 (2004) - 3 TYPES 8 & 10
T-I4	— EMERGENCY PREEMPTION RECEIVER (2004) - 1 UPRIGHT MOUNT (2004) - 2 INVERTED MOUNT



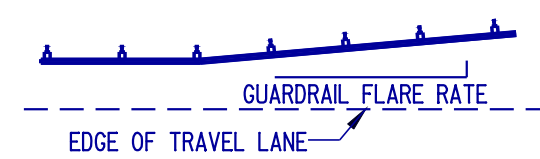
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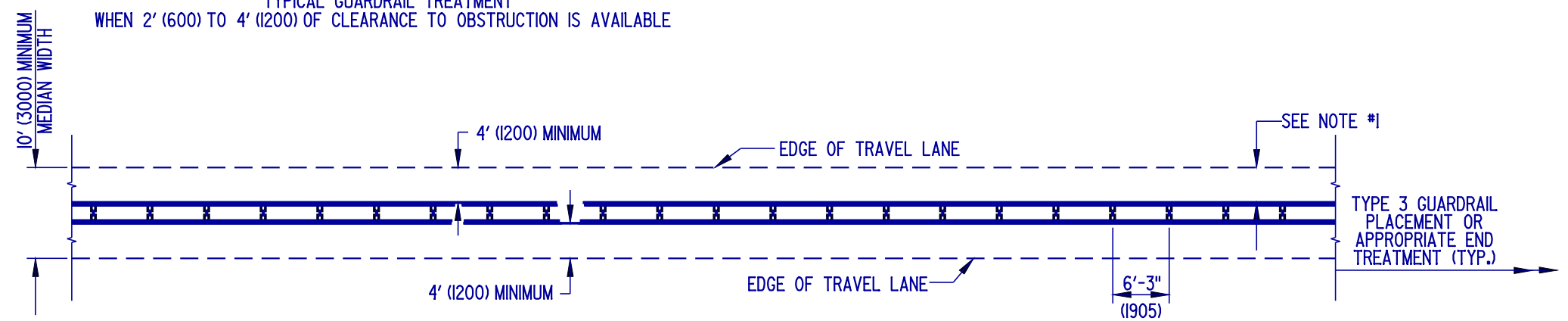
TYPE 1 GUARDRAIL
TYPICAL GUARDRAIL TREATMENT
WHEN THE REQUIRED 4' (1200) CLEARANCE TO OBSTRUCTION IS AVAILABLE



TYPE 2 GUARDRAIL
TYPICAL GUARDRAIL TREATMENT
WHEN 2' (600) TO 4' (1200) OF CLEARANCE TO OBSTRUCTION IS AVAILABLE



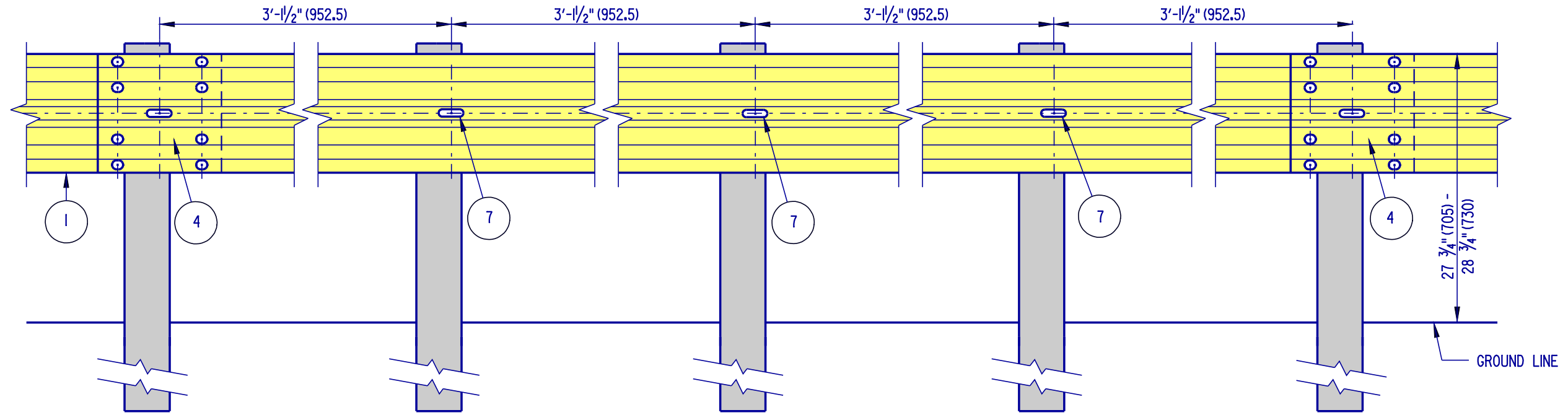
FLARE RATES	
DESIGN SPEED	FLARE RATE
70 MPH (110 km/h)	15:1
60 MPH (100 km/h)	14:1
55 MPH (90 km/h)	12:1
50 MPH (80 km/h)	11:1
45 MPH (70 km/h)	10:1
40 MPH (60 km/h)	9:1
30 MPH (50 km/h)	7:1



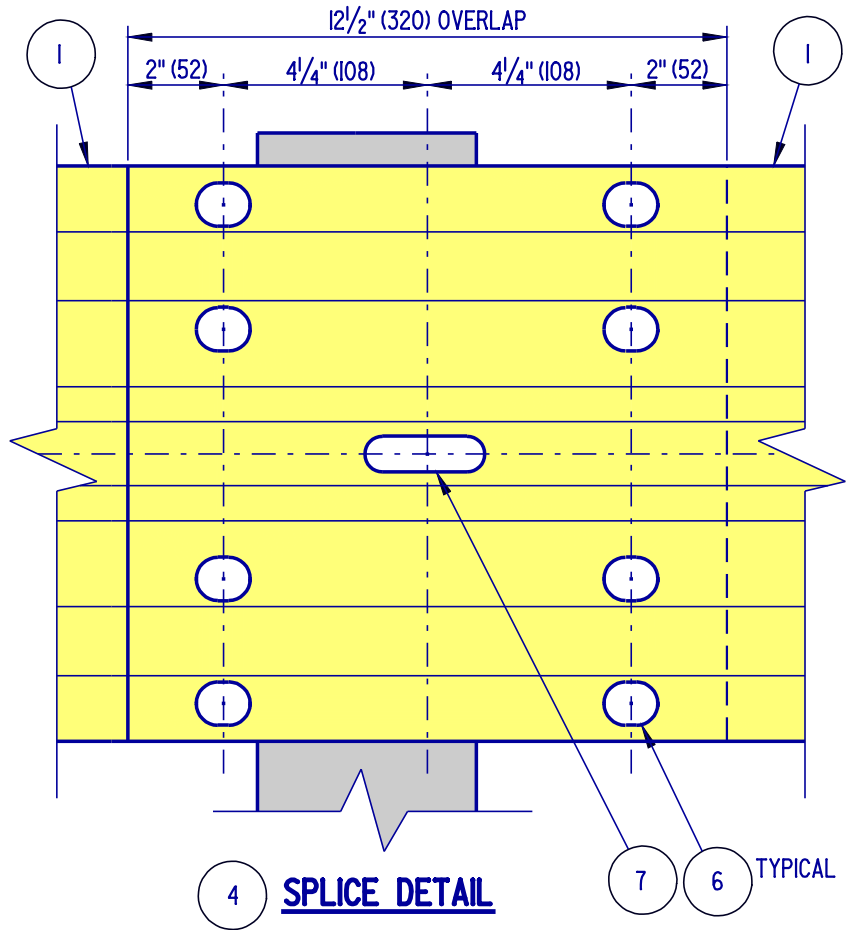
TYPE 3 GUARDRAIL
TYPICAL GUARDRAIL TREATMENT WHEN A MINIMUM OF 10' (3000) IS AVAILABLE FOR MEDIAN

NOTES : 1). THE DISTANCE FROM THE EDGE OF THE TRAVEL LANE OR SHOULDER TO THE FACE OF GUARDRAIL SHOULD BE MAXIMIZED. THIS AREA SHALL BE GRADED 10:1 OR FLATTER.
2). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.

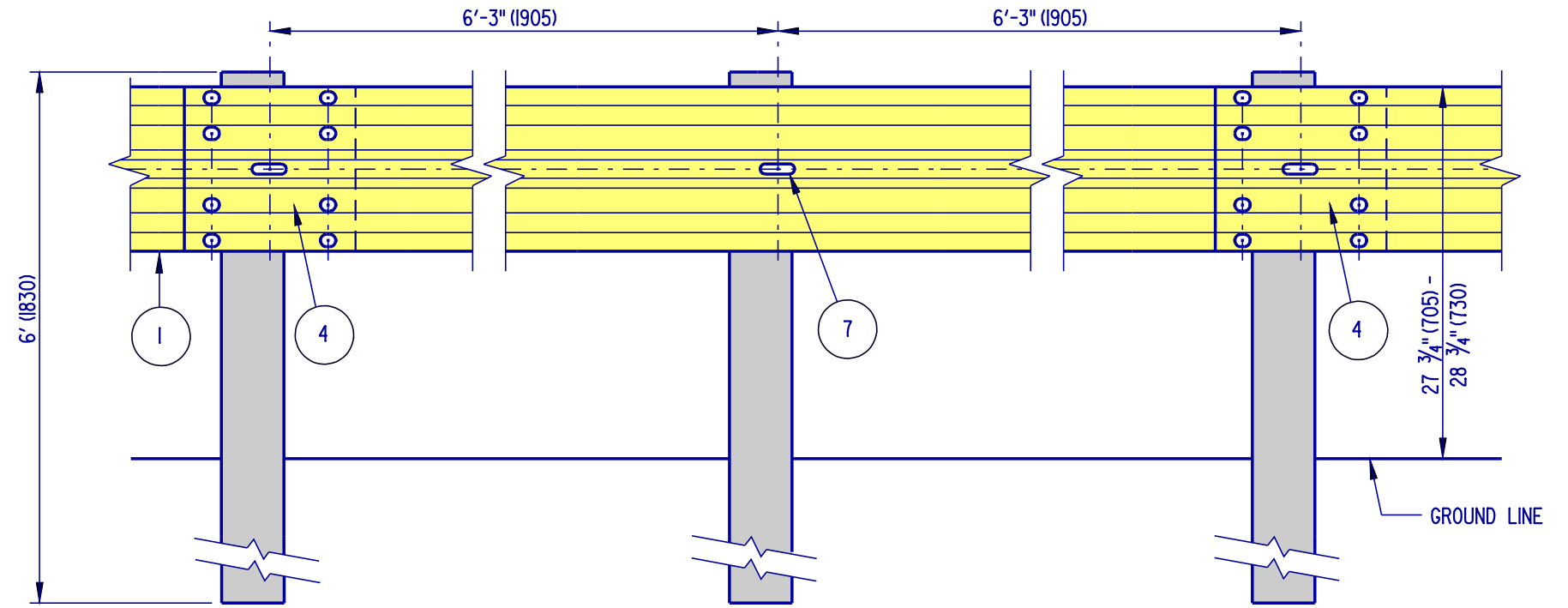
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TYPE 2

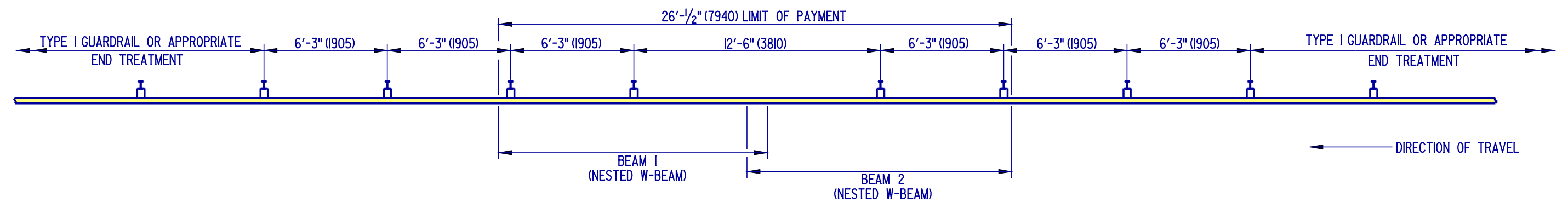


SPLICE DETAIL

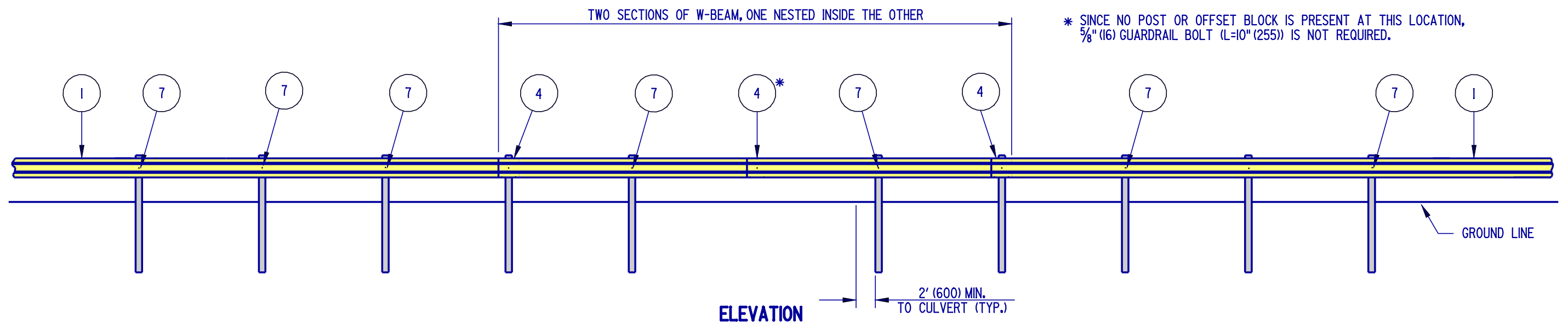


TYPE 1 OR 3

NOTE : OVERLAP W-BEAMS IN DIRECTION OF TRAVEL.



PLAN



ELEVATION

NOTES :1). ALL W-BEAMS ARE 13'-6 1/2" (4130) IN LENGTH.
2). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.



DELAWARE
DEPARTMENT OF TRANSPORTATION

GUARDRAIL OVER CULVERTS, TYPE 1

STANDARD NO. B-2 (2004)

SHT. 1 OF 1

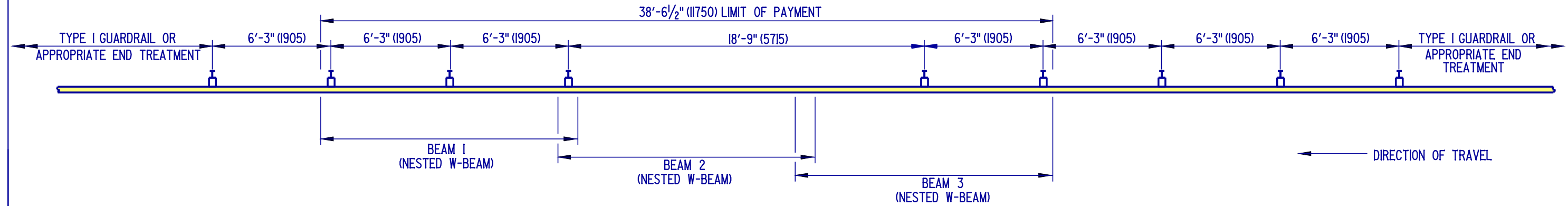
APPROVED

Carolann Wick
CHIEF ENGINEER
DATE 1/10/05

RECOMMENDED

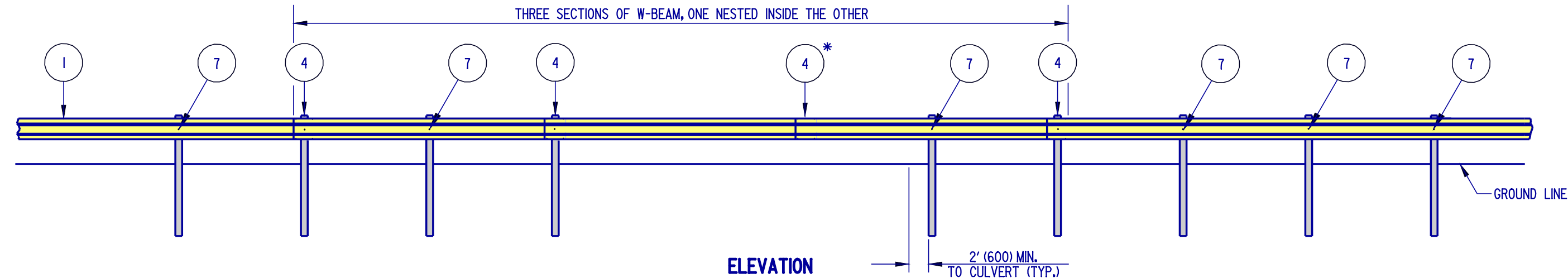
Dennis M. O'Flaherty
DESIGN ENGINEER
DATE 1/13/05

SCALE : N.T.S.




PLAN

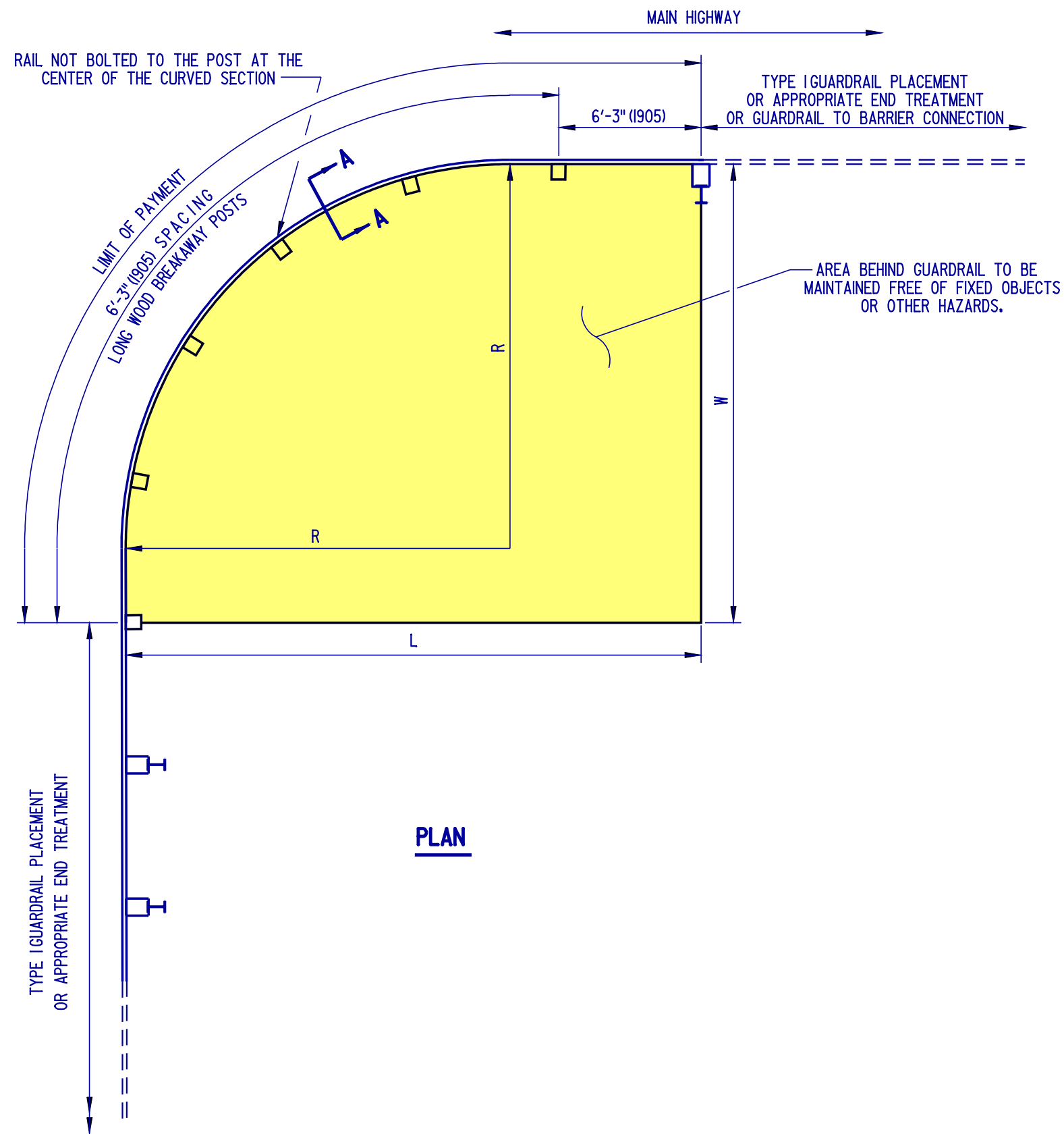
* SINCE NO POST OR OFFSET BLOCK IS PRESENT AT THIS LOCATION, 5/8" (16) GUARDRAIL BOLT (L=10" (255)) IS NOT REQUIRED.



ELEVATION

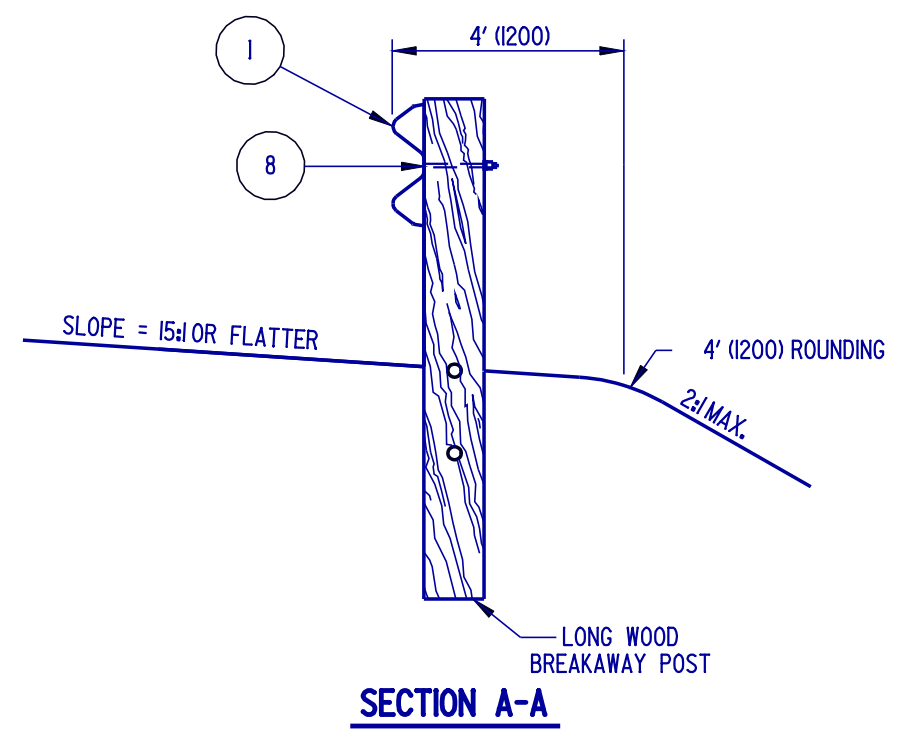
NOTES : 1). ALL W-BEAMS ARE 13'-6 1/2" (4130) IN LENGTH.
2). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.

 DELAWARE DEPARTMENT OF TRANSPORTATION	GUARDRAIL OVER CULVERTS, TYPE 2			APPROVED <i>Carolann Wicks</i> 1/10/05 CHIEF ENGINEER DATE
	STANDARD NO. B-3 (2004)	SHT. 1	OF 1	RECOMMENDED <i>Dennis M. O'Flaherty</i> 1/13/05 DESIGN ENGINEER DATE

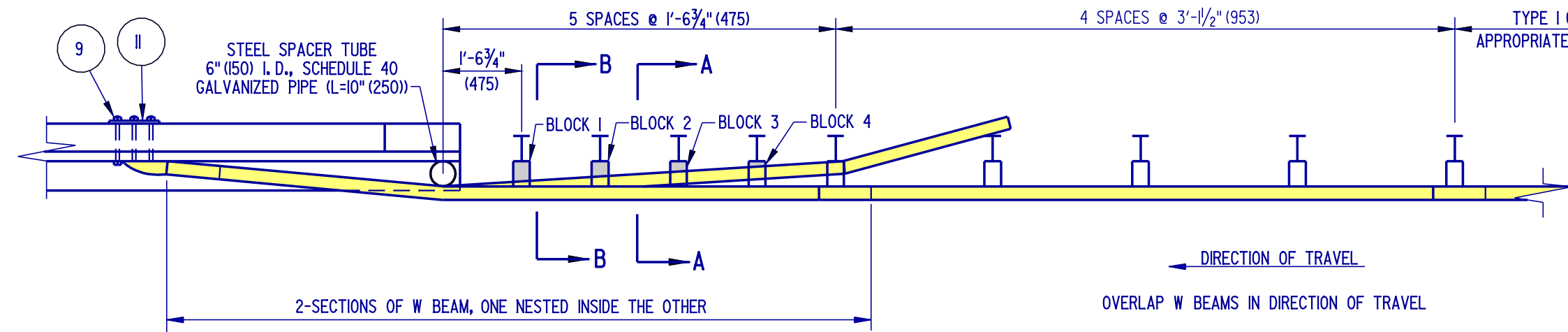


SCALE : N.T.S.

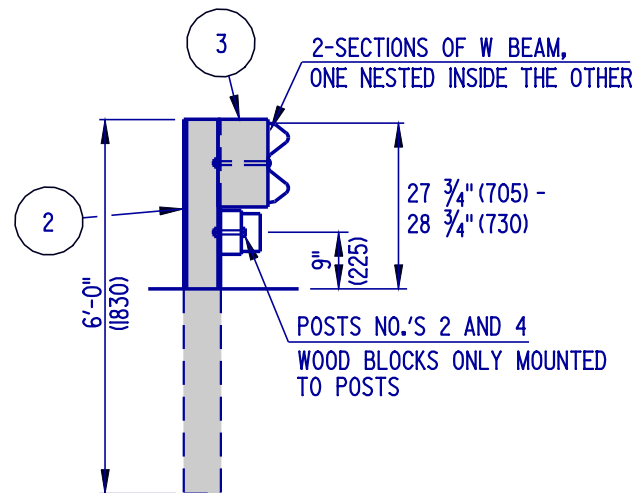
RADIUS	MIN. REQUIRED AREA FREE OF FIXED OBJECTS
	L x W
8'-6" (2600)	25' x 15' (7600 x 4500)
17'-0" (5200)	30' x 15' (9144 x 4500)
25'-6" (7800)	40' x 20' (1200 x 6000)
35'-0" (10700)	50' x 20' (15200 x 6000)



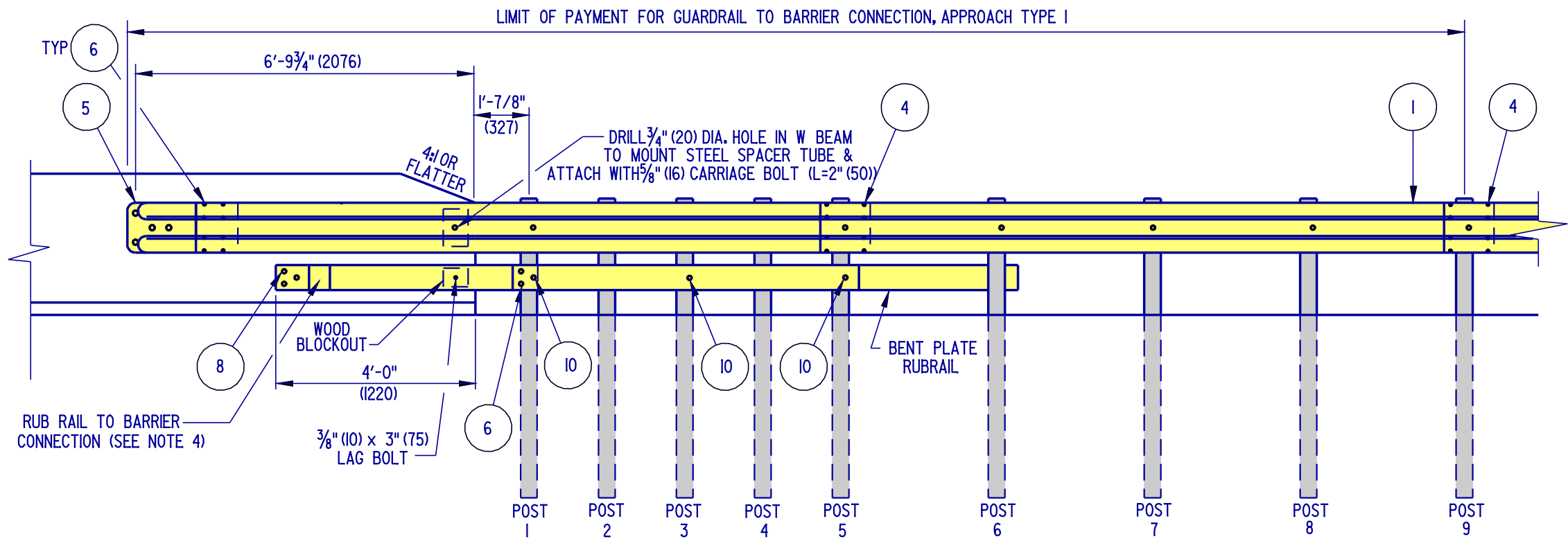
- NOTES: 1). NO WASHERS ARE USED ON THE RAIL SIDE OF THE LONG WOOD BREAKAWAY POSTS.
2). THE CURVED GUARDRAIL SECTION SHALL BE SHOP BENT.
3). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.



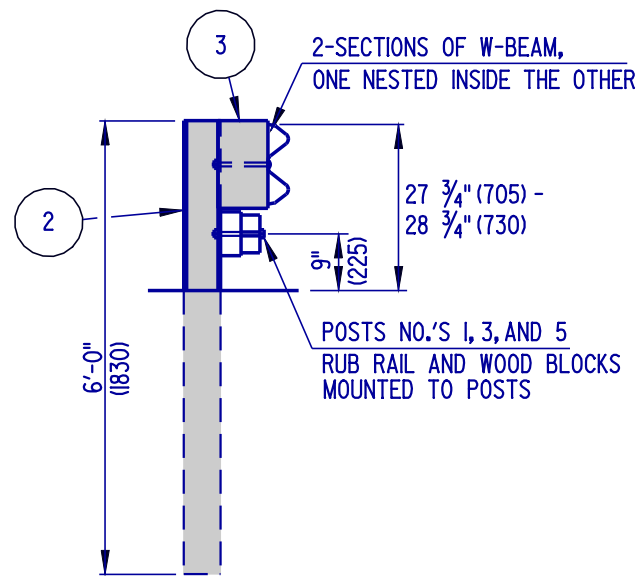
PLAN



SECTION A-A



ELEVATION



SECTION B-B

- NOTES: 1). W BEAM IS NOT BOLTED TO POSTS AT POSTS 2 THROUGH 4.
 2). RUB RAIL IS NOT BOLTED AT POSTS 2 AND 4.
 3). POSTS 1 THROUGH 6 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER WOOD BLOCKS AND/OR RUBRAIL AND WOOD BLOCK.
 4). USE APPROPRIATE EPOXY BOLT ANCHORS TO REDUCE THE CHANCE OF SPLITTING THE CONCRETE. PLACE STEEL WASHERS (FOR 5/8" (16) BOLT) BETWEEN BOLT HEADS AND RUB RAIL.

- 5). ALL HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.
 6). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.
 7). APPROVED CONCRETE INSERTS MAY BE USED IN NEW CONSTRUCTION TO ATTACH TERMINAL CONNECTOR TO PARAPET.



DELAWARE
DEPARTMENT OF TRANSPORTATION

GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1

STANDARD NO. **B-7 (2004)**

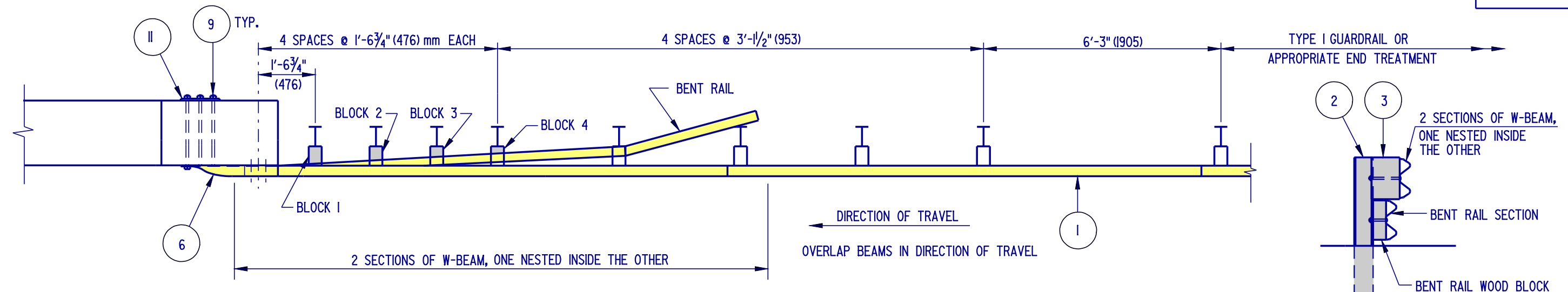
SHT. **1** OF **3**

APPROVED

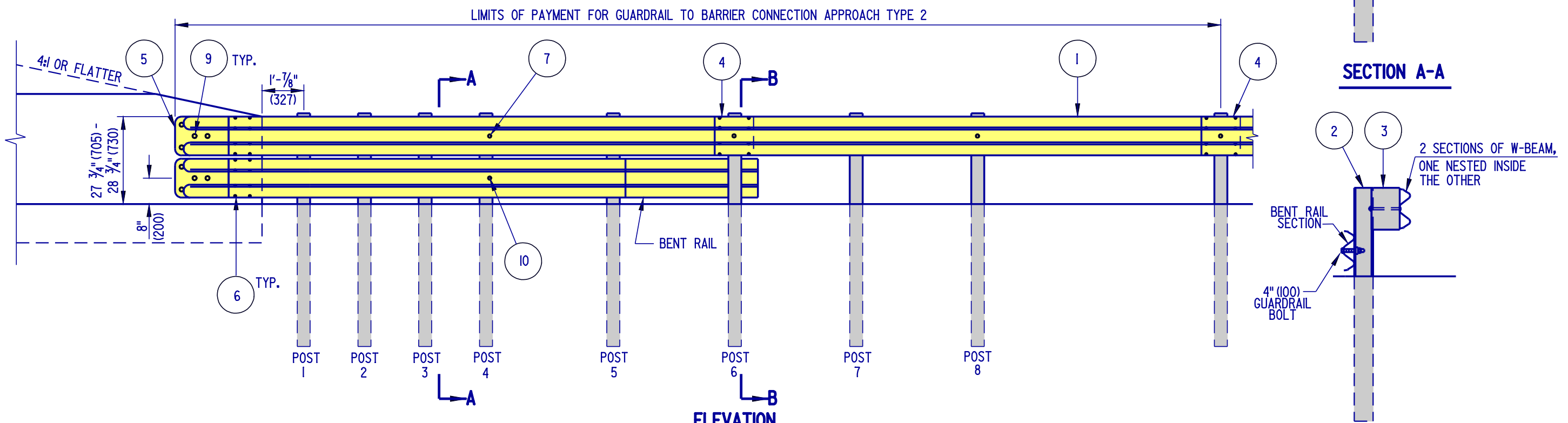
Carolann Wick
 CHIEF ENGINEER
 DATE **1/10/05**

RECOMMENDED

Dennis M. O'Flaherty
 DESIGN ENGINEER
 DATE **1/13/05**



PLAN



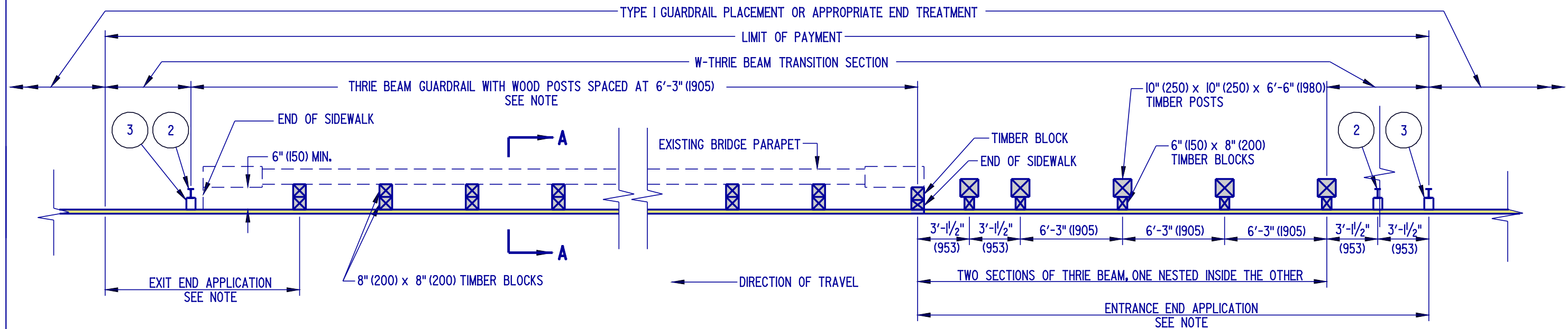
ELEVATION

SECTION A-A

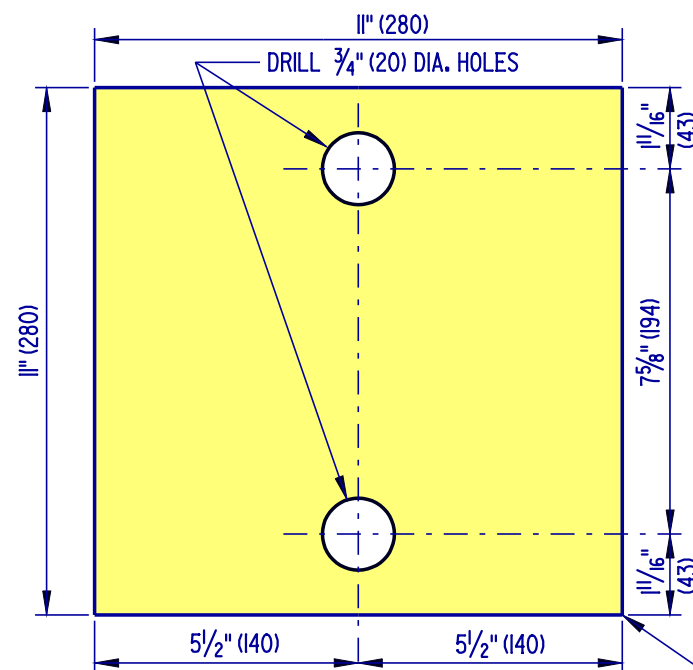
SECTION B-B

- NOTES :
- 1). CURB SHALL NOT BE USED AT THE FACE OF RAIL WITHIN THE LIMITS OF THIS INSTALLATION.
 - 2). POSTS 1, 2, 3, 4, AND 6 REQUIRE AN ADDITIONAL HOLE TO ATTACH WOOD BLOCKS AND/OR BENT RAIL.
 - 3). DO NOT ATTACH RAILS TO POSTS 1, 2, 3, 5, OR 7.
 - 4). CURB SHALL NOT BE USED AT THE FACE OF RAIL WITHIN THE LIMITS OF THIS INSTALLATION.
 - 5). ALL HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.
 - 6). BENT RAIL MAY BE SHOP BENT TO FACILITATE INSTALLATION OR MAY BE FIELD BENT USING HEAT.
 - 7). APPROVED CONCRETE INSERTS MAY BE USED IN NEW CONSTRUCTION TO ATTACH TERMINAL CONNECTORS TO PARAPET.
 - 8). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.
 - 9). WHEN PLACED OVER CURB (MIN 8" (200) HIGH), BOTTOM RAIL CAN BE ELIMINATED.

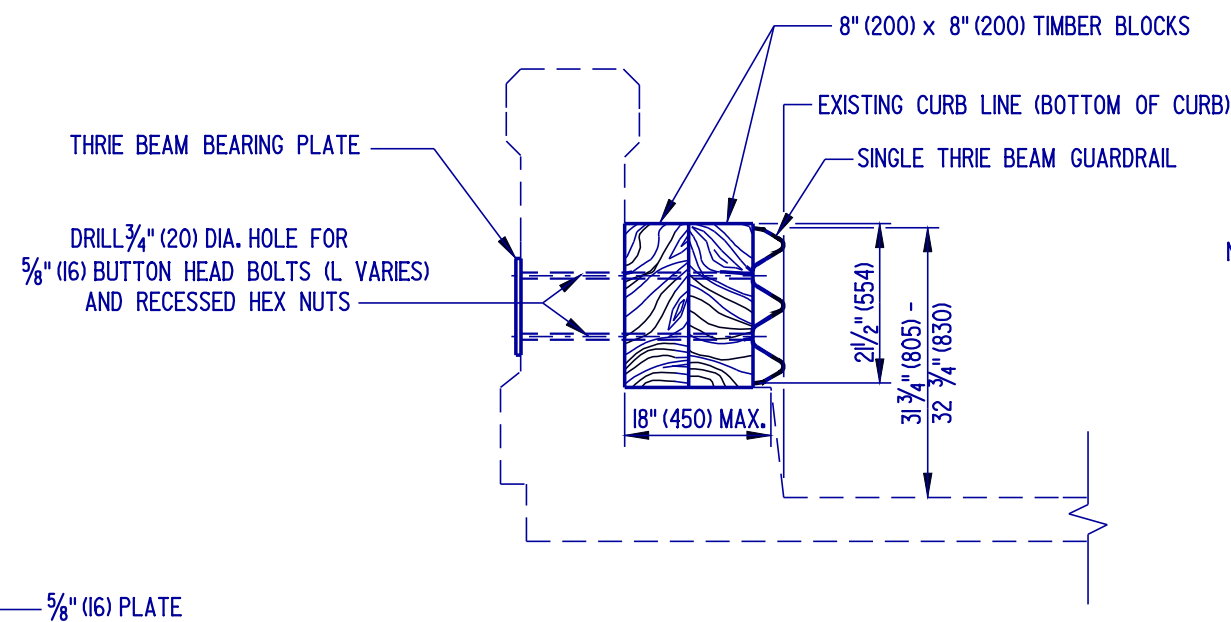
<p>DELAWARE DEPARTMENT OF TRANSPORTATION</p>	GUARDRAIL TO BARRER CONNECTION, APPROACH TYPE 2			APPROVED <i>Carolann Wick</i> 1/10/05	
	STANDARD NO. B-8 (2004)	SHT. 1	OF 2	RECOMMENDED <i>Dennis M. O'Fl</i> 1/13/05	



PLAN



THRIE BEAM BEARING PLATE DETAIL



SECTION A-A

- NOTES: 1). THIS INSTALLATION SHALL BE USED WHEN THE EXISTING SIDEWALK IS 18" (450) OR LESS.
 2). USE A THRIE BEAM EXPANSION SECTION AT BRIDGE EXPANSION JOINTS.
 3). PLACE GUARDRAIL REFLECTOR IN THE UPPER VALLEY OF THE THRIE BEAM EVERY FIFTH POST.
 4). TIMBER BLOCK THICKNESS SHALL BE ADJUSTED TO ALLOW FACE OF THE THRIE BEAM TO BE FLUSH WITH BOTTOM OF CURB (MINIMUM THICKNESS SHALL BE 4" (100)).
 5). THE EXIT END APPLICATION SHALL BE USED ONLY ON DIVIDED HIGHWAYS. FOR ALL OTHER SITUATIONS, THE ENTRANCE END APPLICATION SHALL BE USED ON BOTH ENDS OF THE BRIDGE PARAPET.
 6). SPACING OF WOOD POSTS MAY NEED TO BE REDUCED TO ACCOMMODATE LINING UP POSTS AT THE END OF THE PARAPET.



DELAWARE
DEPARTMENT OF TRANSPORTATION

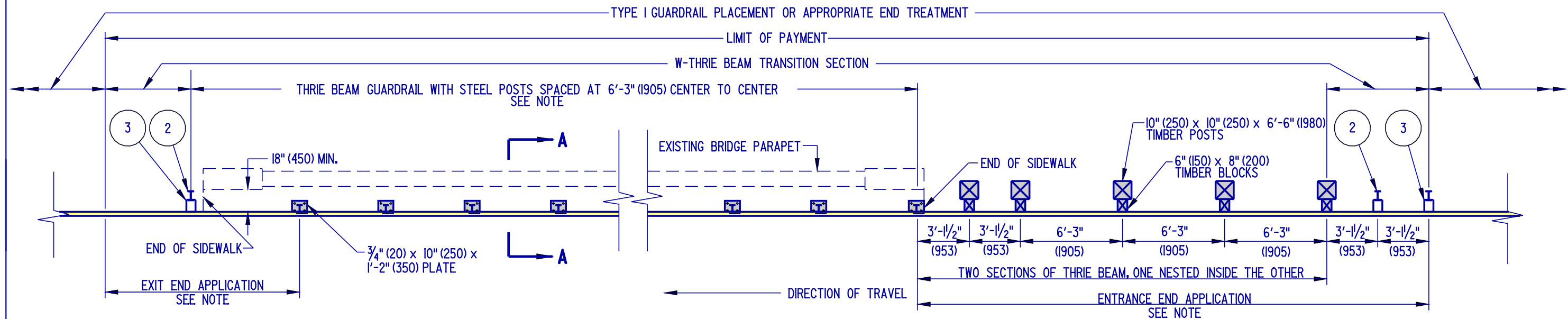
BRIDGE RAIL RETROFIT, TYPE 1

STANDARD NO. B-10 (2004)

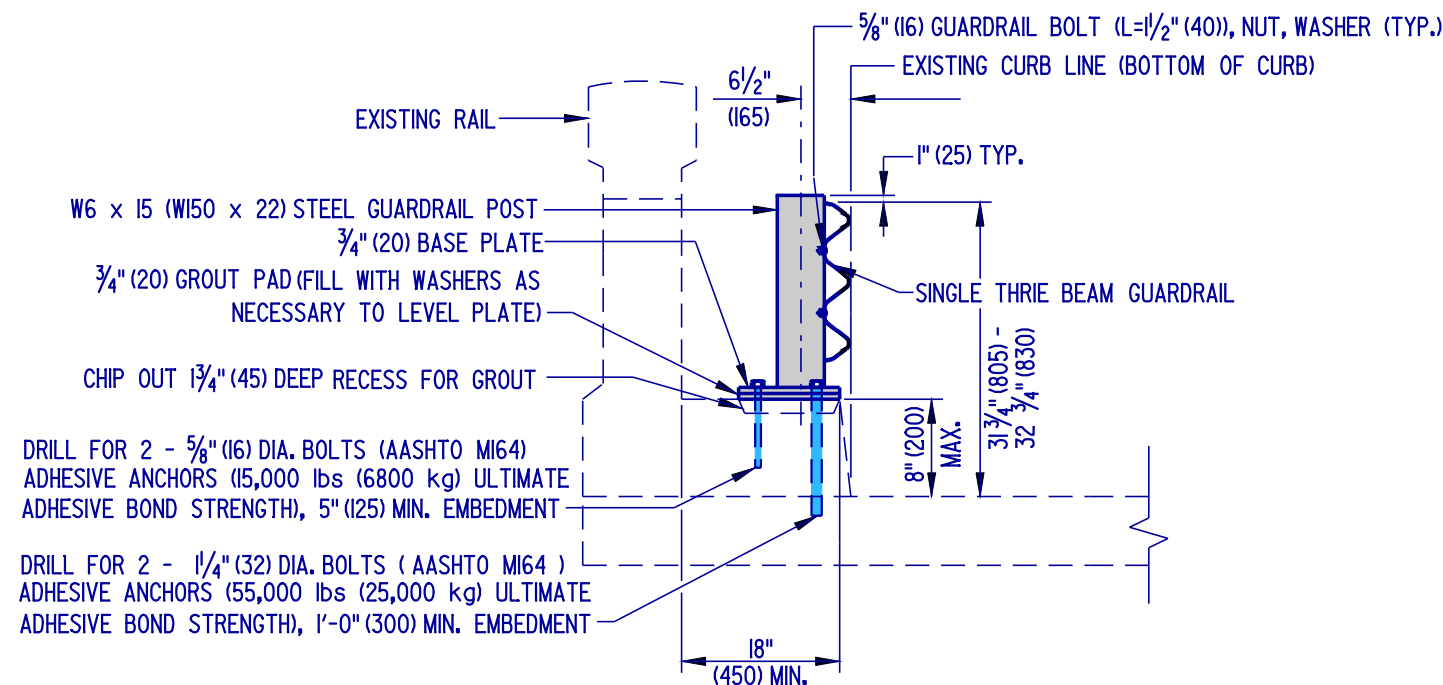
SHT. 1 OF 1

APPROVED *Carolann Wicks* 1/10/05
CHIEF ENGINEER DATE

RECOMMENDED *Dennis M. O'Flaherty* 1/13/05
DESIGN ENGINEER DATE



PLAN



SECTION A-A

- NOTES: 1). THIS INSTALLATION SHALL BE USED WHEN THE EXISTING SIDEWALK IS 18" (450) OR WIDER, AND DEAD LOAD CONSIDERATIONS ARE A CONCERN WHEN USING BRIDGE RAIL RETROFIT, TYPE 3.
 2). ADHESIVE ANCHORS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS AND SHALL BE GALVANIZED.
 3). USE A THRIE BEAM EXPANSION SECTION AT BRIDGE EXPANSION JOINTS.
 4). PLACE GUARDRAIL REFLECTOR IN THE UPPER VALLEY OF THE THRIE BEAM EVERY FIFTH POST.
 5). THE EXIT END APPLICATION SHALL BE USED ONLY ON DIVIDED HIGHWAYS. FOR ALL OTHER SITUATIONS, THE ENTRANCE END APPLICATION SHALL BE USED ON BOTH ENDS OF THE BRIDGE PARAPET.
 6). SPACING OF STEEL POSTS MAY NEED TO BE REDUCED TO ACCOMMODATE LINING UP POSTS AT THE END OF THE PARAPET.



DELAWARE
DEPARTMENT OF TRANSPORTATION

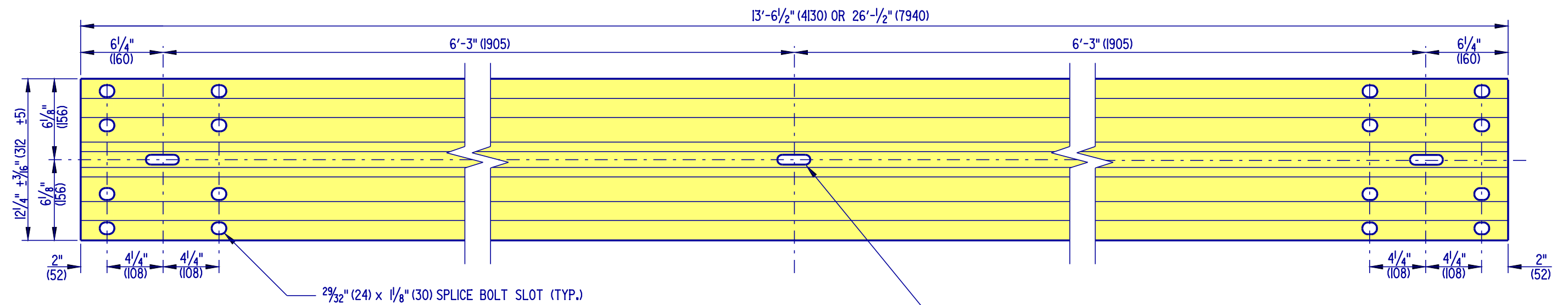
BRIDGE RAIL RETROFIT, TYPE 2

STANDARD NO. **B-11 (2004)**

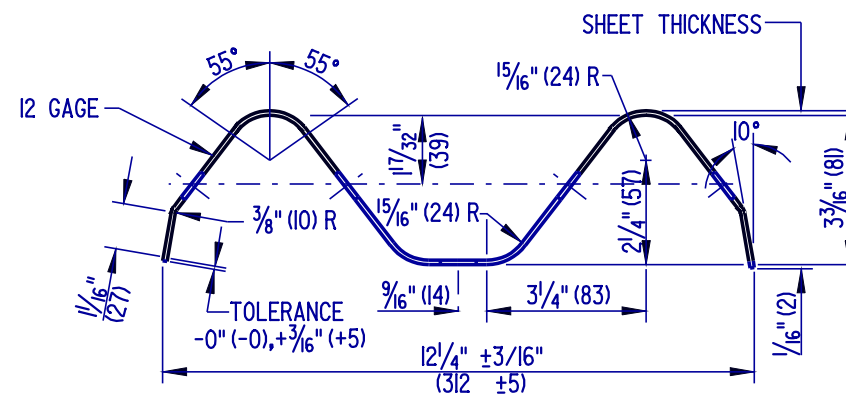
SHT. **1** OF **4**

APPROVED *Carolann Wicks* **1/10/05**
CHIEF ENGINEER DATE

RECOMMENDED *Dennis M. O'Flaherty* **1/13/05**
DESIGN ENGINEER DATE



W-BEAM ELEVATION



W-BEAM SECTION

NOTES: 1). TWO ADDITIONAL 3/4" (20) x 2 1/2" (65) SLOTS SHALL BE PROVIDED AT 6'-3" (1905) SPACING FOR BEAM LENGTH OF 26'-1/2" (7940).



DELAWARE
DEPARTMENT OF TRANSPORTATION

HARDWARE

STANDARD NO. B-13 (2004)

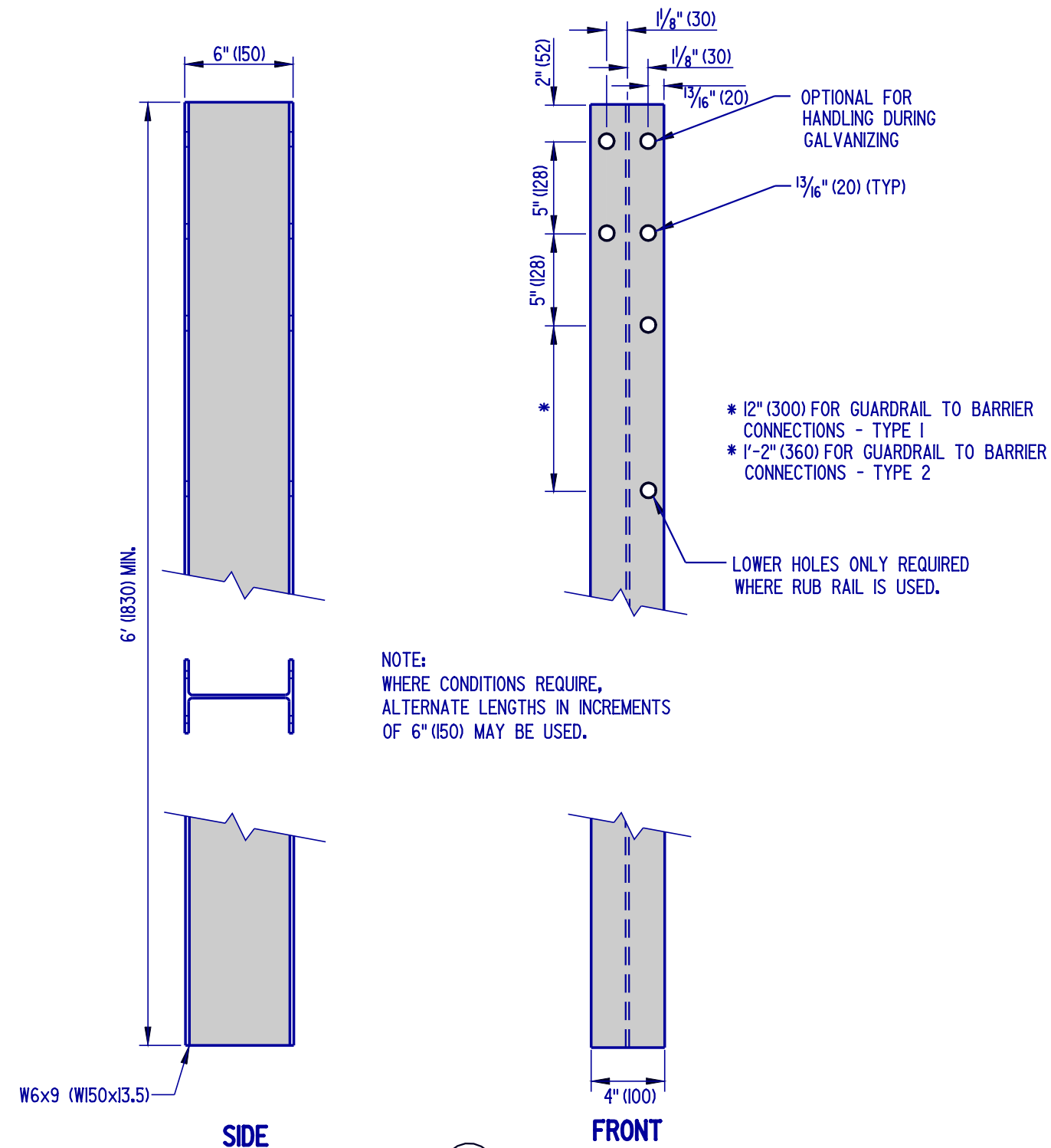
SHT. 1 OF 13

APPROVED

Carolann Wicks
CHIEF ENGINEER
DATE 1/10/05

RECOMMENDED

Dennis M. O'Flaherty
DESIGN ENGINEER
DATE 1/13/05



NOTE:
WHERE CONDITIONS REQUIRE,
ALTERNATE LENGTHS IN INCREMENTS
OF 6" (150) MAY BE USED.

NOTE : ALL HOLES SHALL BE 13/16" (20) DIA. BOLT
HOLE PATTERN IS SYMMETRICAL WITH RESPECT
TO THE VERTICAL AXIS OF THE POST.

W-BEAM STEEL POST AND WOOD OFFSET BLOCK



DELAWARE
DEPARTMENT OF TRANSPORTATION

HARDWARE

STANDARD NO. B-13 (2004)

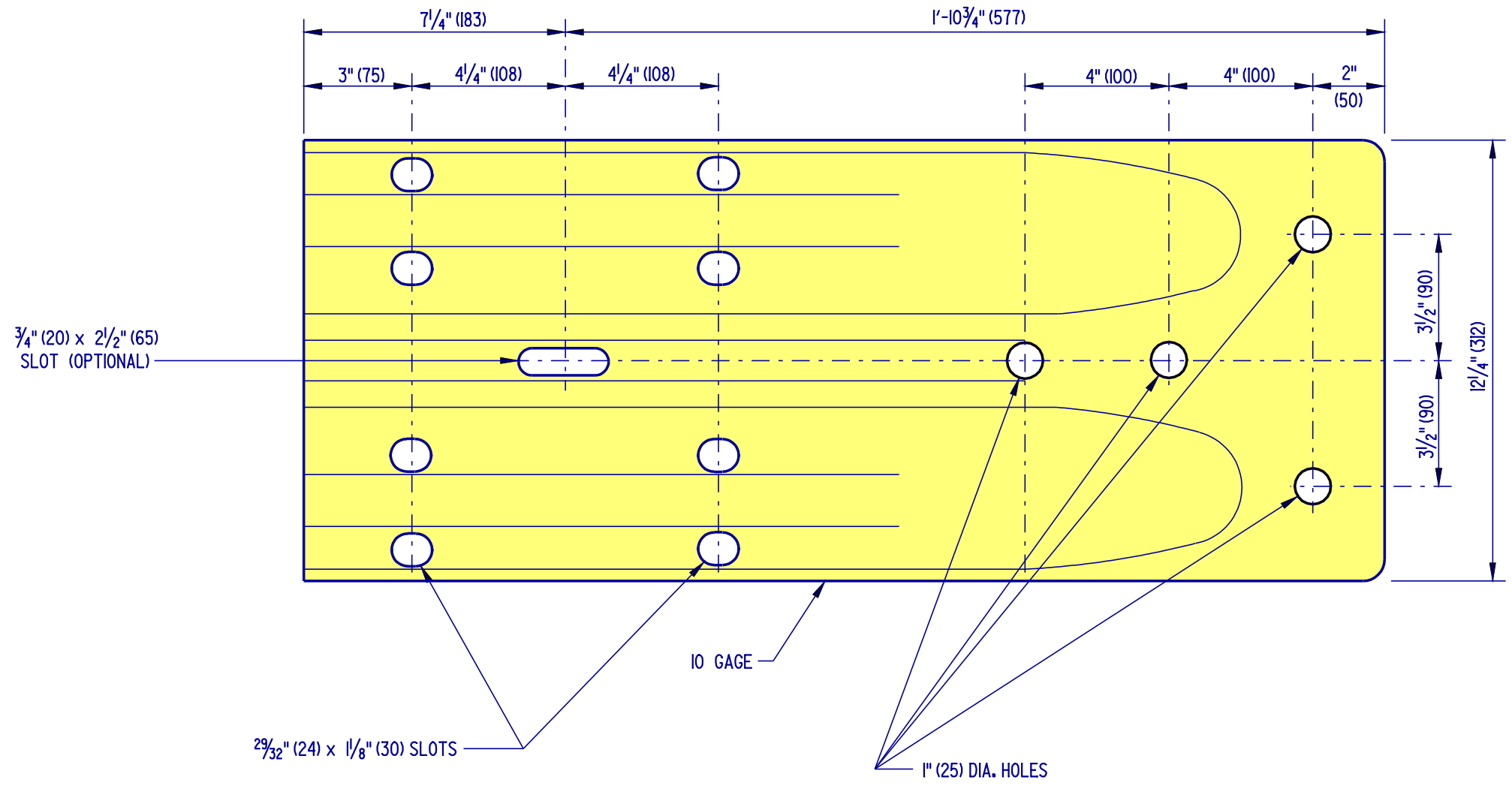
SHT. 2 OF 13

APPROVED

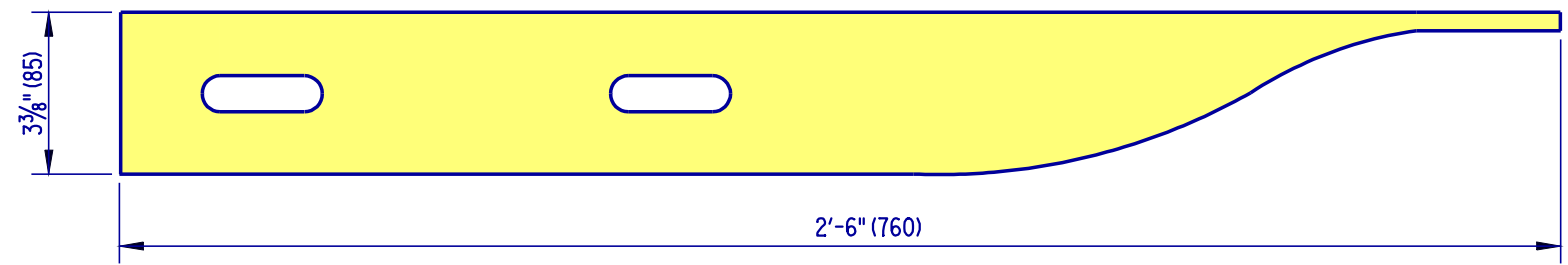
Carolann Wicks
CHIEF ENGINEER
DATE 1/10/05

RECOMMENDED

Dennis M. O'Flaherty
DESIGN ENGINEER
DATE 1/13/05




ELEVATION

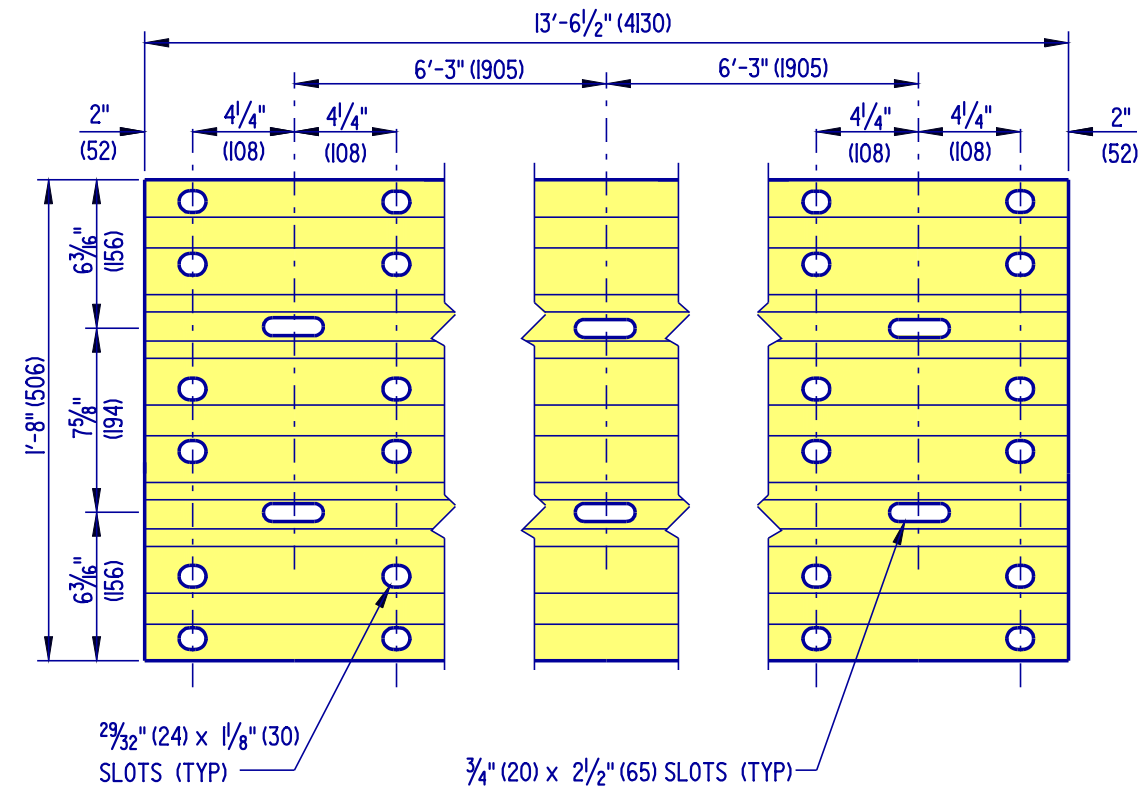


PLAN

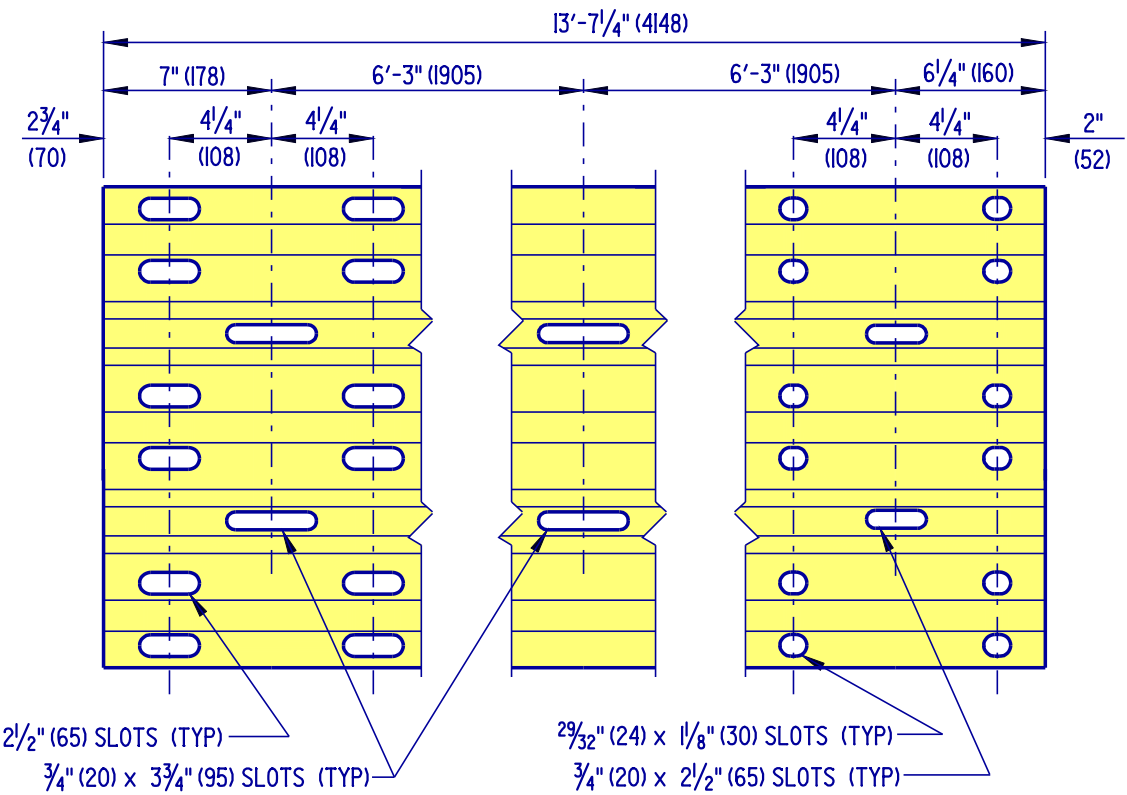
W-BEAM TERMINAL CONNECTOR

5

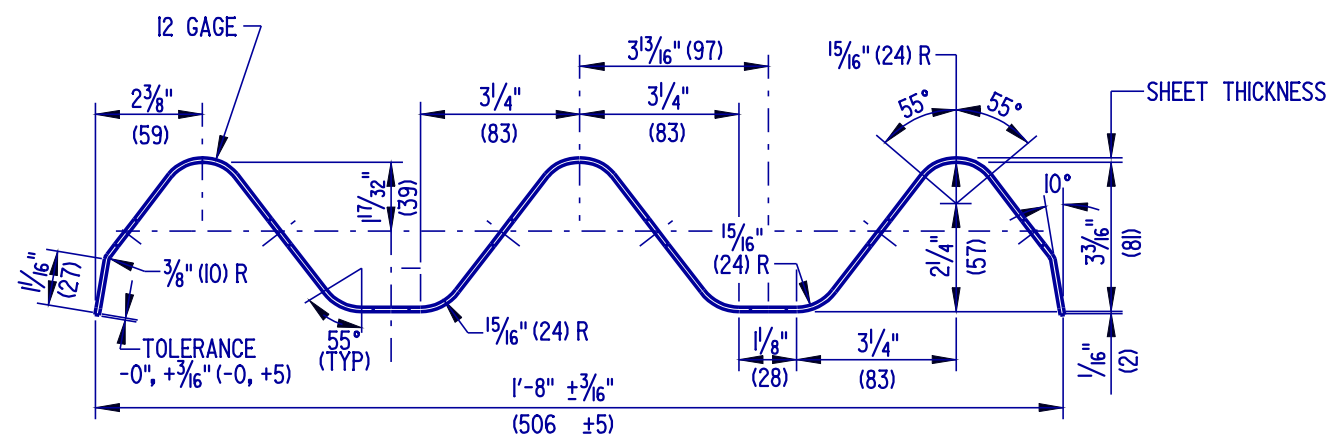
 DELAWARE DEPARTMENT OF TRANSPORTATION	HARDWARE			APPROVED <i>Carolann Wicks</i> 1/10/05 CHIEF ENGINEER DATE
	STANDARD NO. B-13 (2004)	SHT. 3	OF 13	RECOMMENDED <i>Dennis M. O'Flaherty</i> 1/3/05 DESIGN ENGINEER DATE



THRIE BEAM ELEVATION



THRIE BEAM EXPANSION ELEMENT



THRIE BEAM SECTION



DELAWARE
DEPARTMENT OF TRANSPORTATION

HARDWARE

STANDARD NO. B-13 (2004)

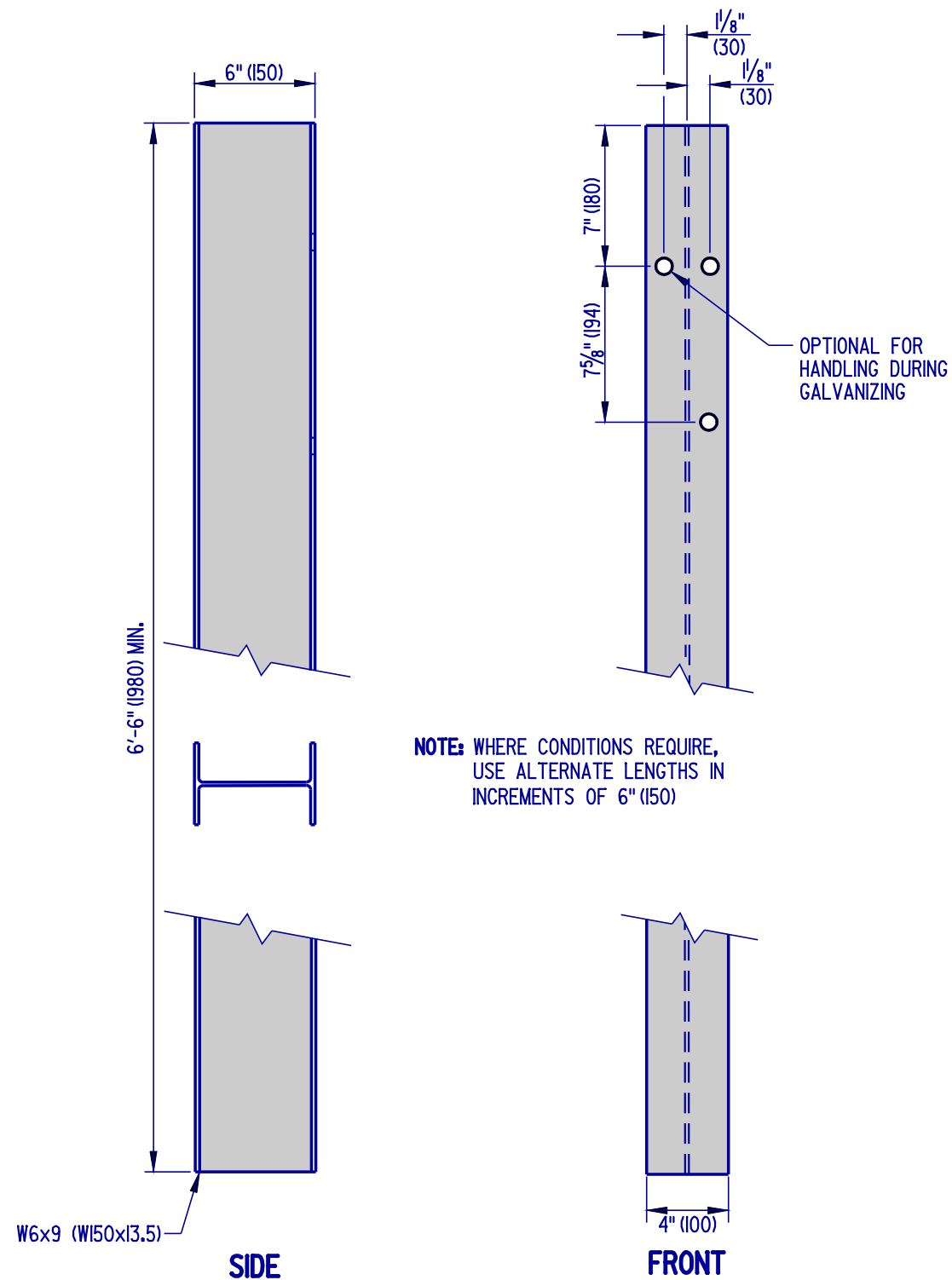
SHT. 4 OF 13

APPROVED

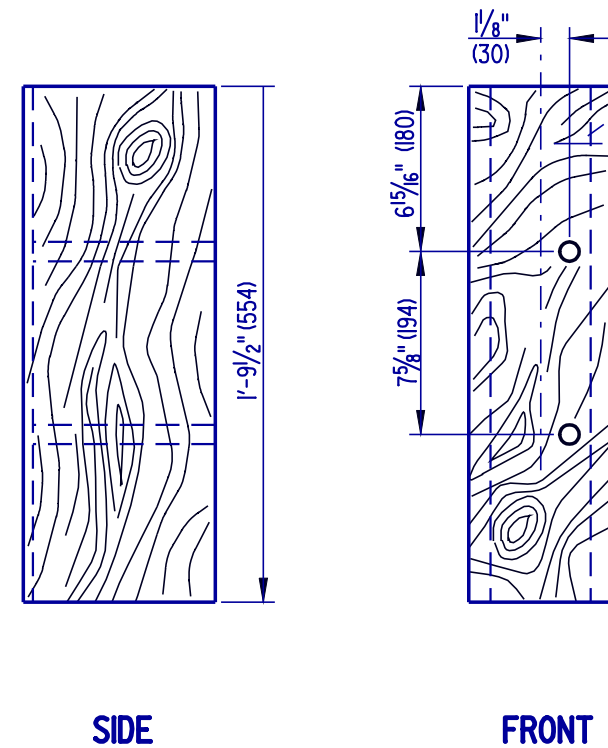
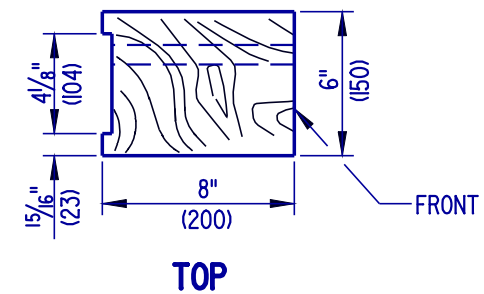
Carolann Wicks 1/10/05
CHIEF ENGINEER DATE

RECOMMENDED

Dennis M. O'Flaherty 1/13/05
DESIGN ENGINEER DATE



POST 2



OFFSET BLOCK

3

NOTE :
ALL HOLES SHALL BE 13/16" (20) DIA. BOLT HOLE
PATTERN IS SYMMETRICAL WITH RESPECT TO THE
VERTICAL AXIS OF THE POST.



DELAWARE
DEPARTMENT OF TRANSPORTATION

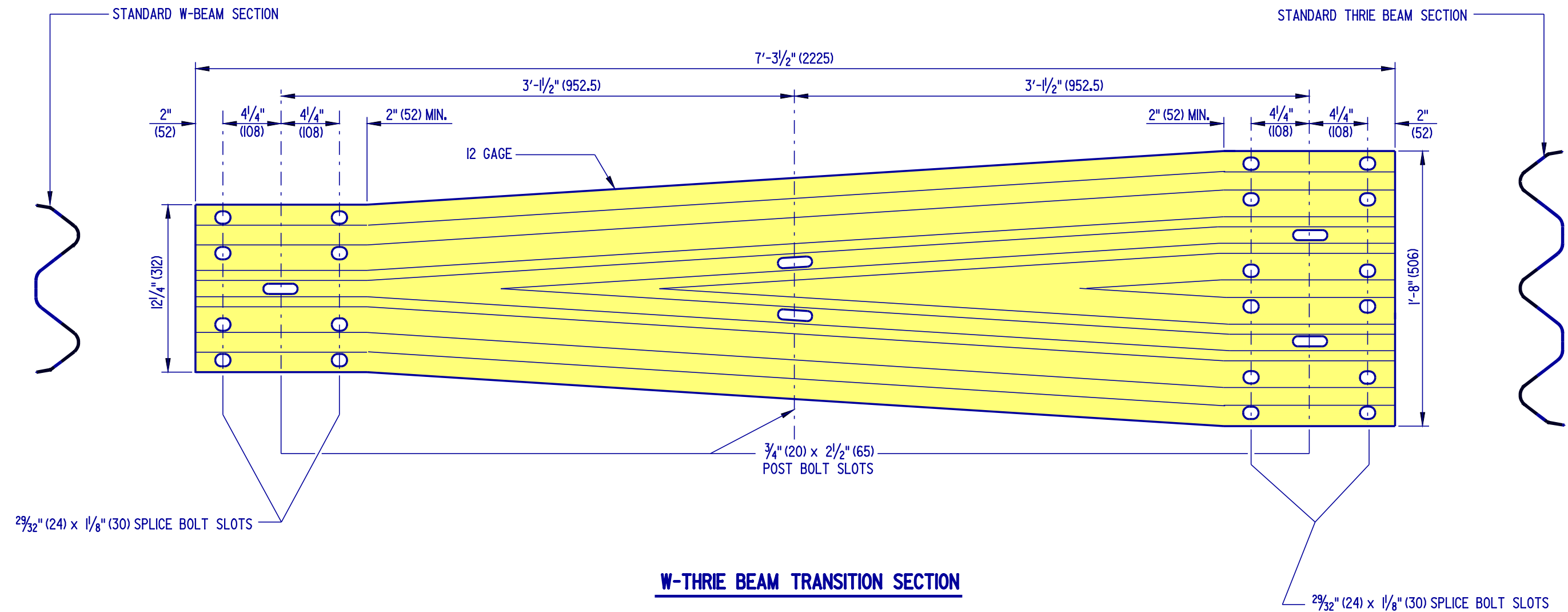
HARDWARE

STANDARD NO. B-13 (2004)

SHT. 5 OF 13

APPROVED *Carolann Wicks* 1/10/05
CHIEF ENGINEER DATE

RECOMMENDED *Dennis M. O'Flaherty* 1/13/05
DESIGN ENGINEER DATE



DELAWARE
DEPARTMENT OF TRANSPORTATION

HARDWARE

STANDARD NO.

B-13 (2004)

SHT.

6

OF

13

APPROVED

Carolann Wicks
CHIEF ENGINEER

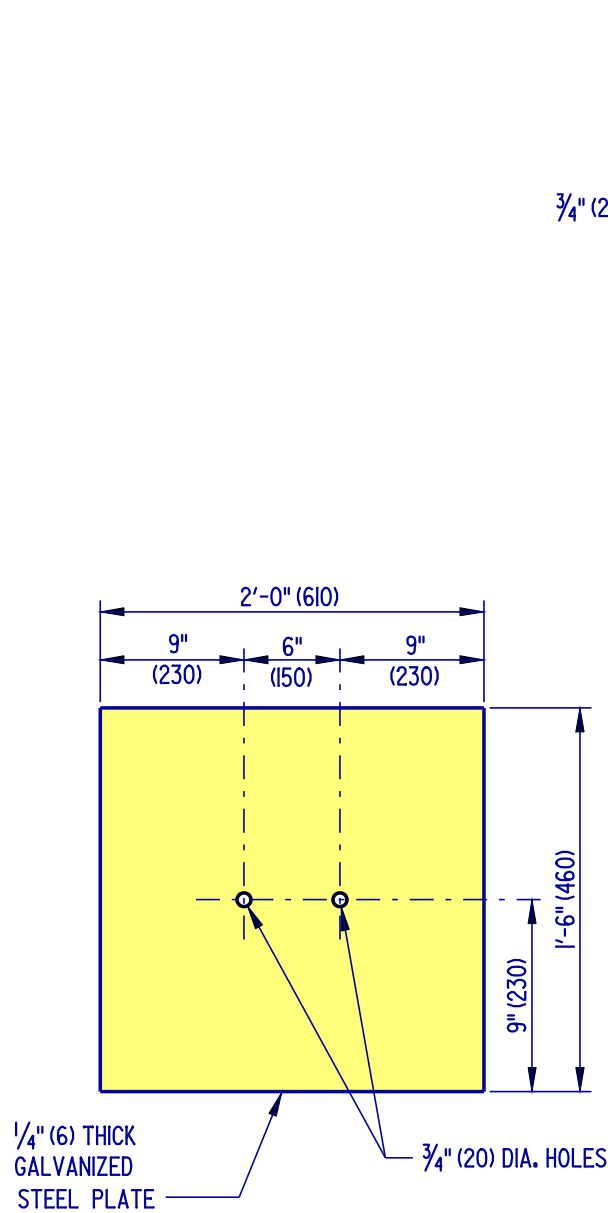
1/10/05
DATE

RECOMMENDED

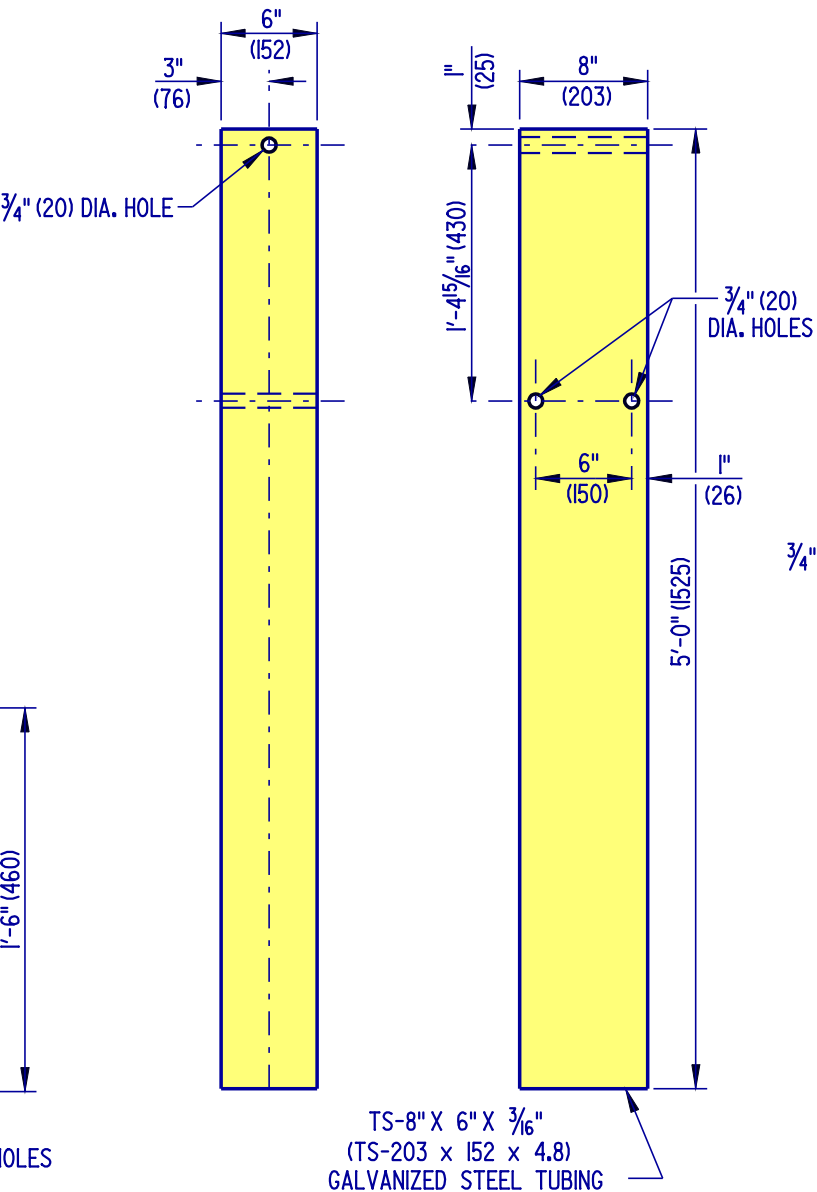
Dennis M. O'Flaherty
DESIGN ENGINEER

1/3/05
DATE

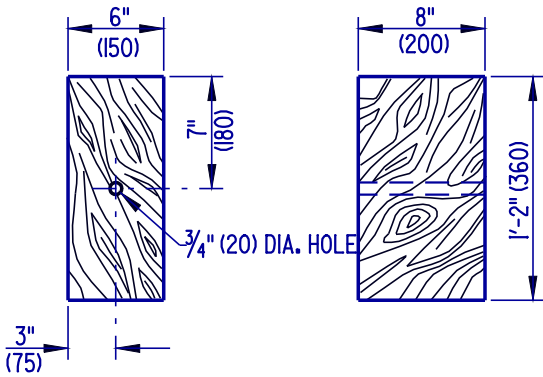
NOTES : 1). ALL HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.
2). ALL WOOD SIZES ARE NOMINAL DIMENSIONS.



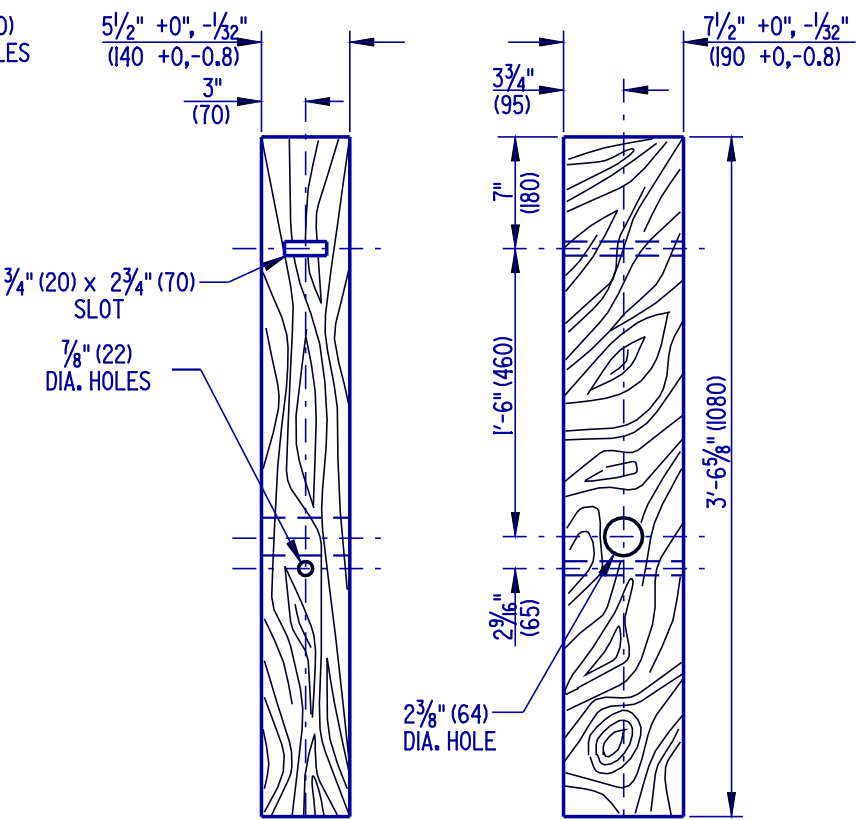
SOIL PLATE



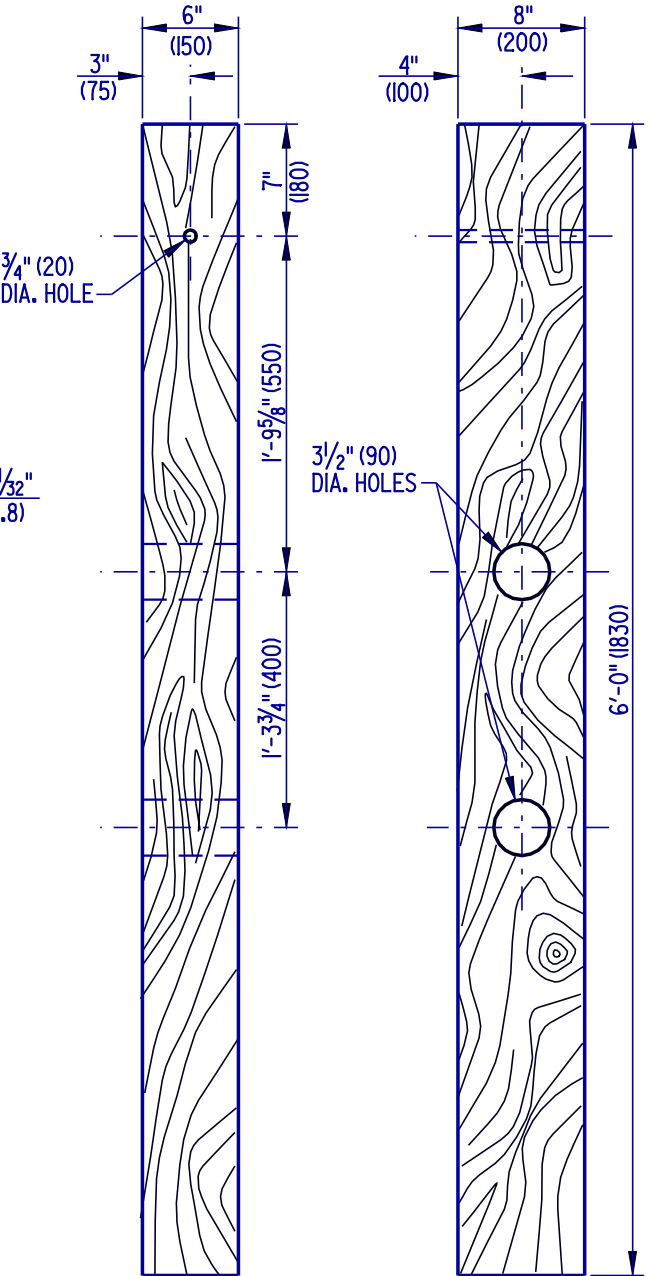
STEEL TUBE



WOOD BLOCK



SHORT WOOD BREAKAWAY POST



LONG WOOD BREAKAWAY POST

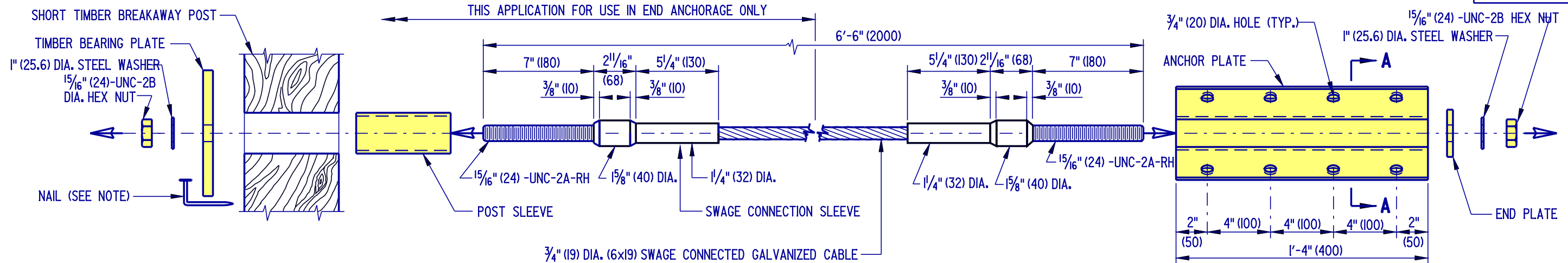


DELAWARE
DEPARTMENT OF TRANSPORTATION

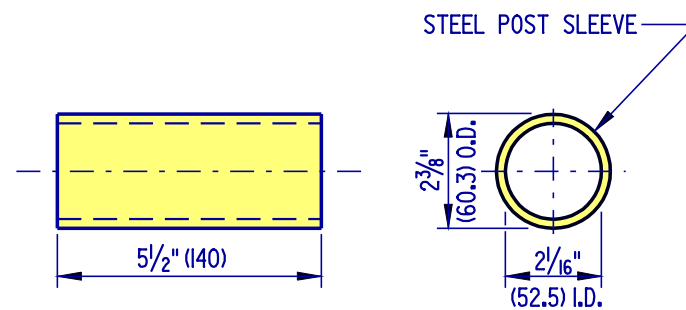
HARDWARE			
STANDARD NO.	B-13 (2004)	SHT.	7 OF 13

APPROVED *Carolann Wicks* 1/10/05
CHIEF ENGINEER DATE
RECOMMENDED *Dennis M. O'Flaherty* 1/13/05
DESIGN ENGINEER DATE

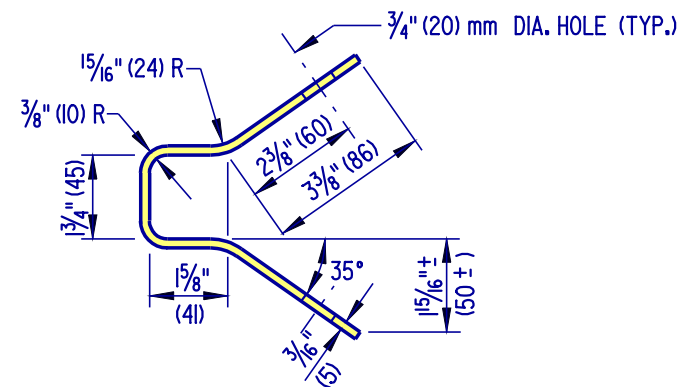
SCALE : N.T.S.



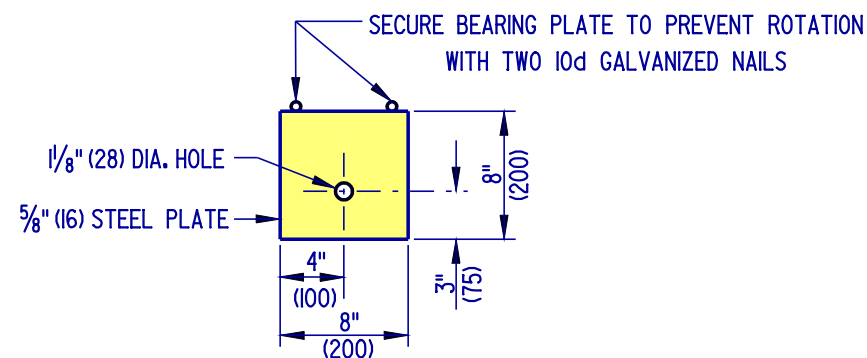
SWAGED CABLE ASSEMBLAGE AND RELATED HARDWARE ASSEMBLY



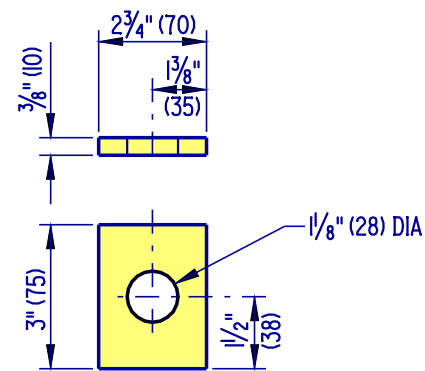
POST SLEEVE



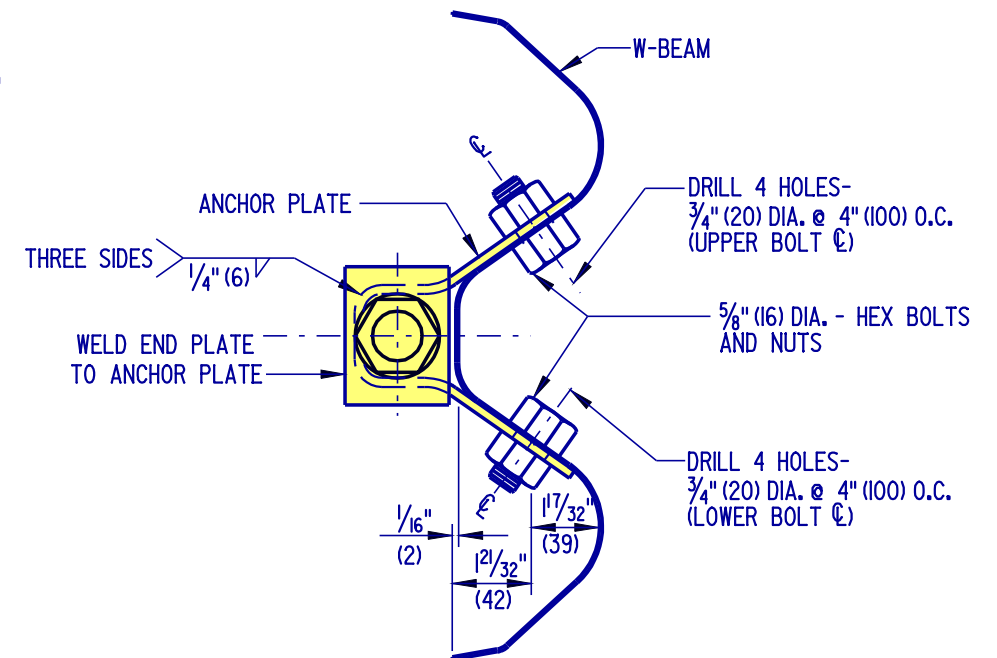
SECTION A-A



TIMBER BEARING PLATE



END PLATE



ANCHOR PLATE TO W-BEAM CONNECTION DETAIL

- NOTES: 1). TO ENSURE THAT THE TIMBER BEARING PLATE REMAINS IN POSITION, 2 - 10d GALVANIZED STEEL NAILS SHALL BE DRIVEN IN THE SHORT TIMBER BREAKAWAY POST, AND BENT OVER BEARING PLATE.
- 2). TIGHTEN ASSEMBLY UNTIL CABLE IS TAUGHT.
- 3). ALL HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.



DELAWARE
DEPARTMENT OF TRANSPORTATION

STANDARD NO. B-13 (2004)

HARDWARE

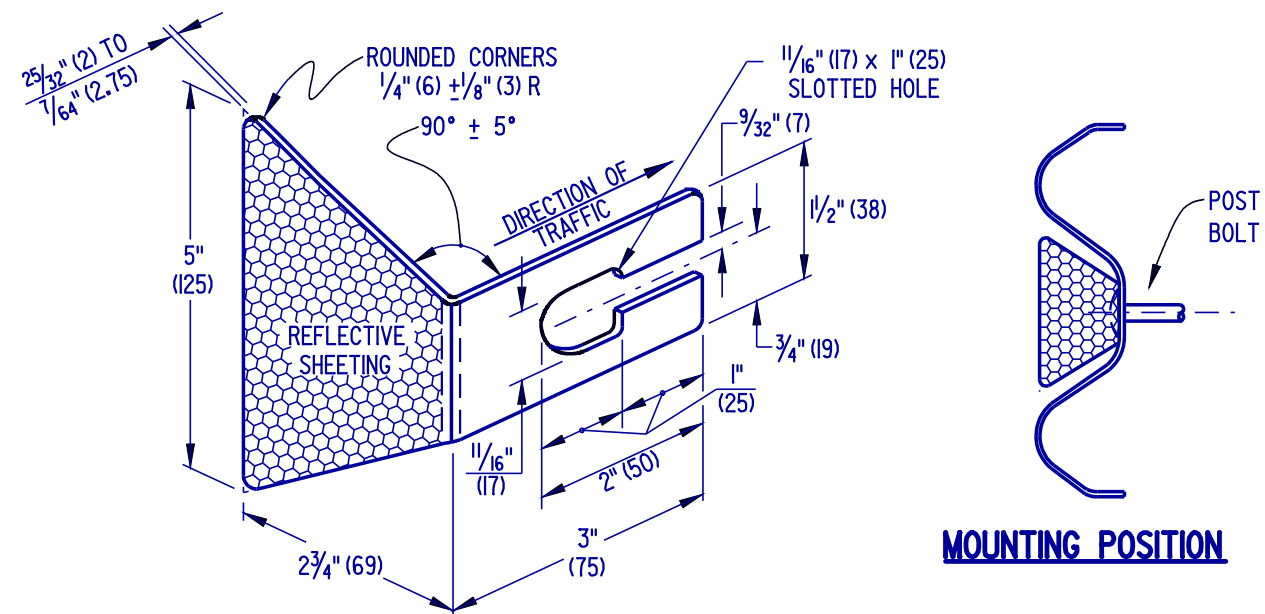
SHT. 8 OF 13

APPROVED

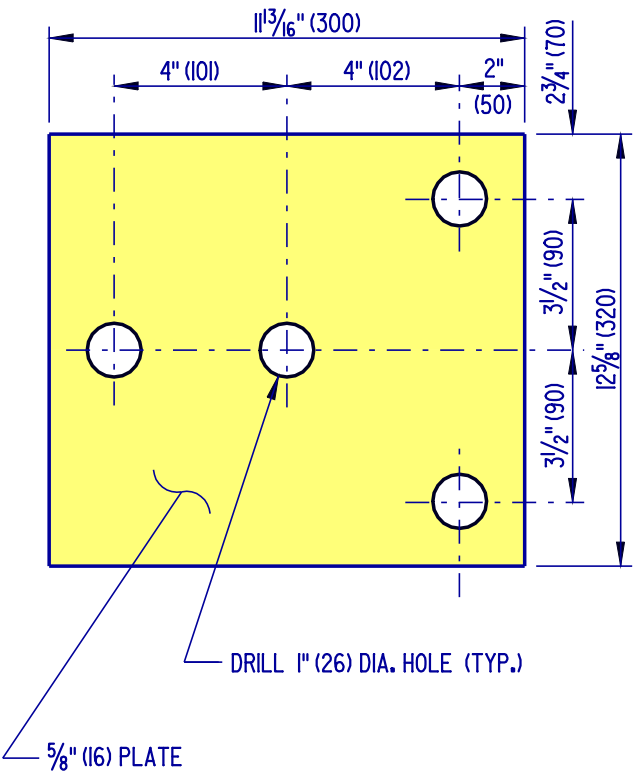
Carolann Wicks 1/10/05
CHIEF ENGINEER DATE

RECOMMENDED

Dennis M. O'Flaherty 1/13/05
DESIGN ENGINEER DATE



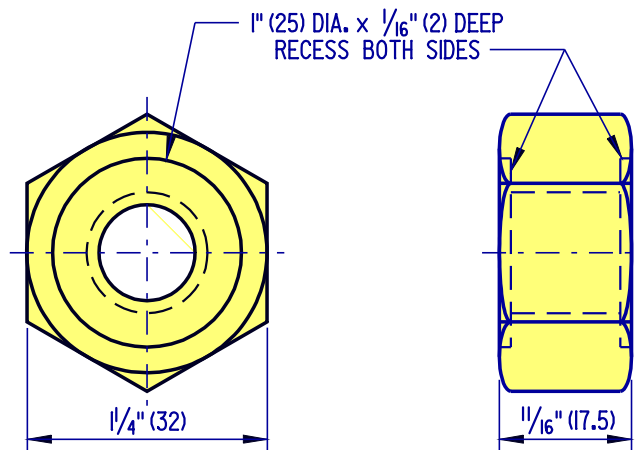
GUARDRAIL REFLECTOR



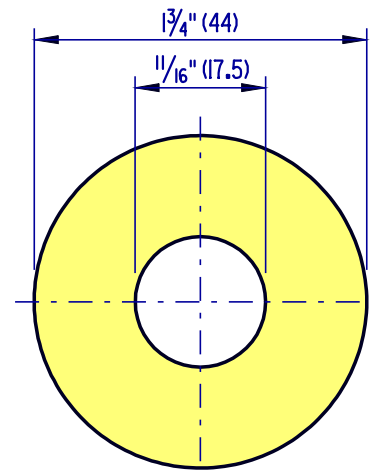
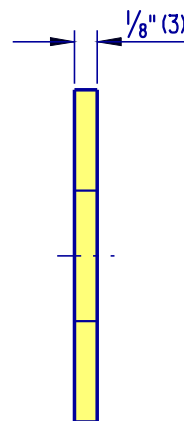
BEARING PLATE DETAIL

11



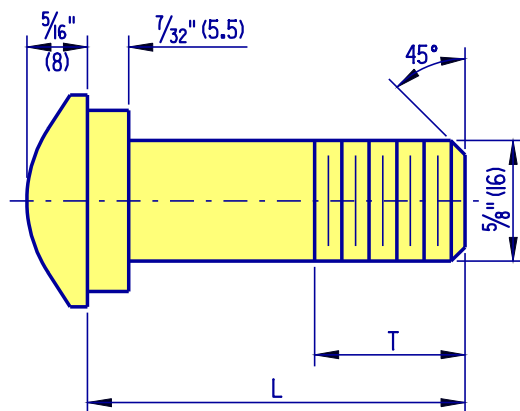


RECESSED NUT
(FOR 5/8\" (16) GUARDRAIL BOLT)

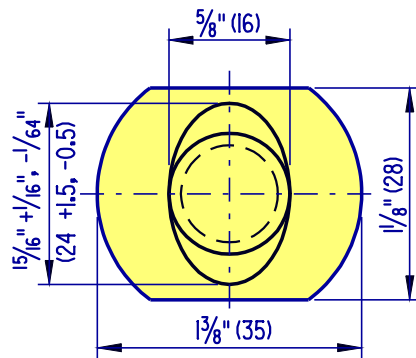


STEEL WASHER (FOR 5/8\" (16) GUARDRAIL BOLT)

NOTE: DIMENSION FOR WASHER THICKNESS IS APPROXIMATE BASED ON METAL THICKNESS.



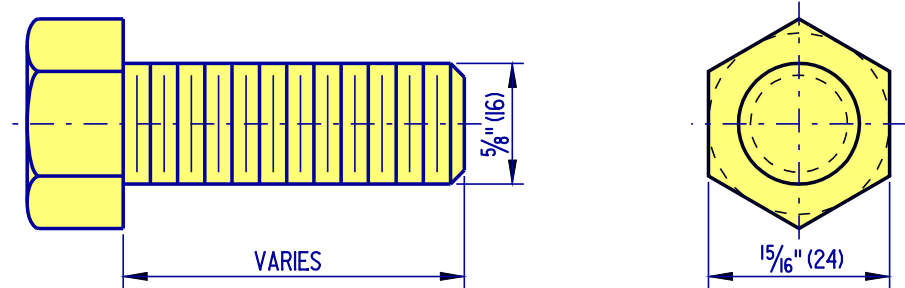
GUARDRAIL BOLT



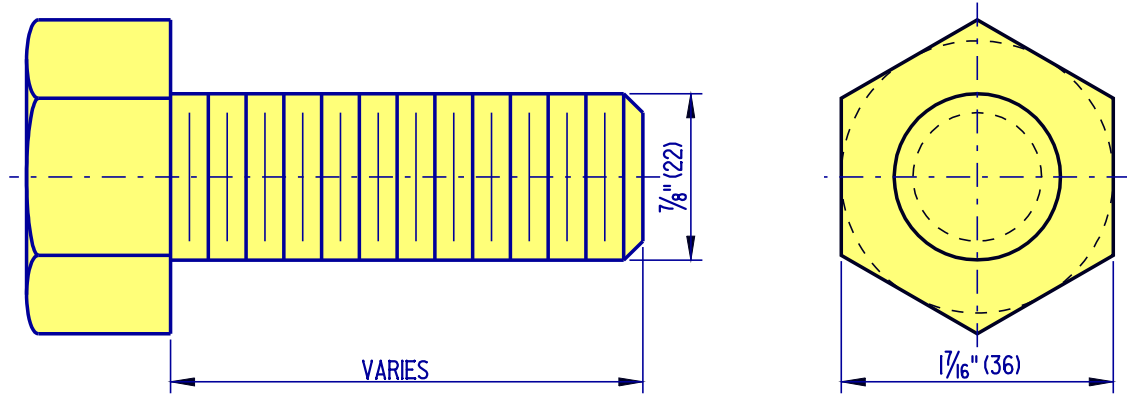
L	T (MIN.)
1 1/4\" (35)	FULL THREAD LENGTH
2\" (50)	FULL THREAD LENGTH
4\" (100)	FULL THREAD LENGTH
10\" (255)	4\" (100) THREAD LENGTH
18\" (460)	4\" (100) THREAD LENGTH

NOTES : 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 1/16\" (2).
2. IF THE BOLT EXTENDS MORE THAN 1/2\" (12) BEYOND THE NUT, THE BOLT SHALL BE TRIMMED BACK AS PER THE DEPARTMENT'S SPECIFICATIONS.

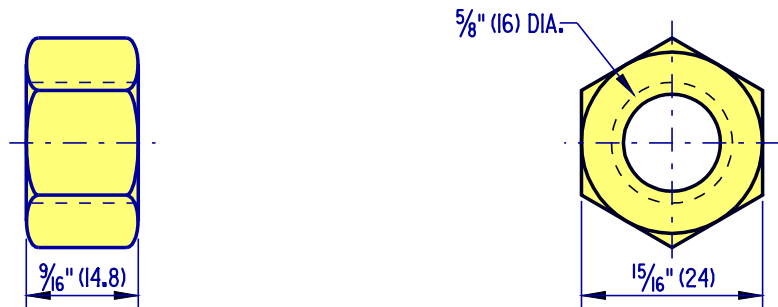




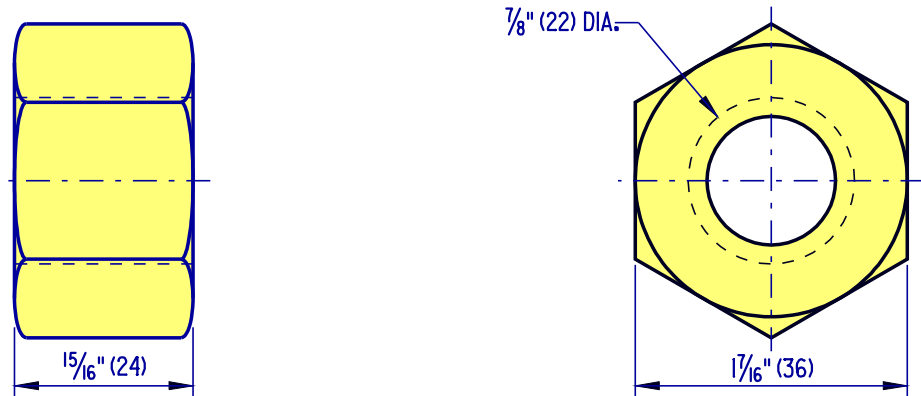
5/8" (16) HEX BOLT



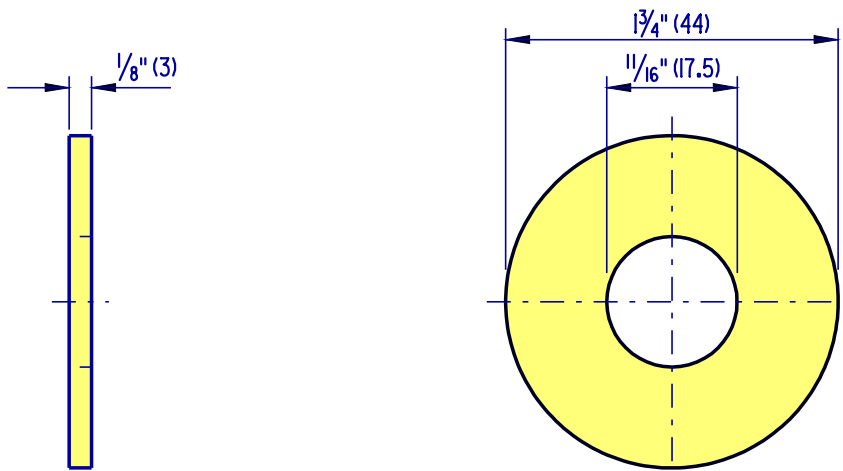
HIGH-STRENGTH STRUCTURAL HEX BOLT



5/8" (16) HEX NUT



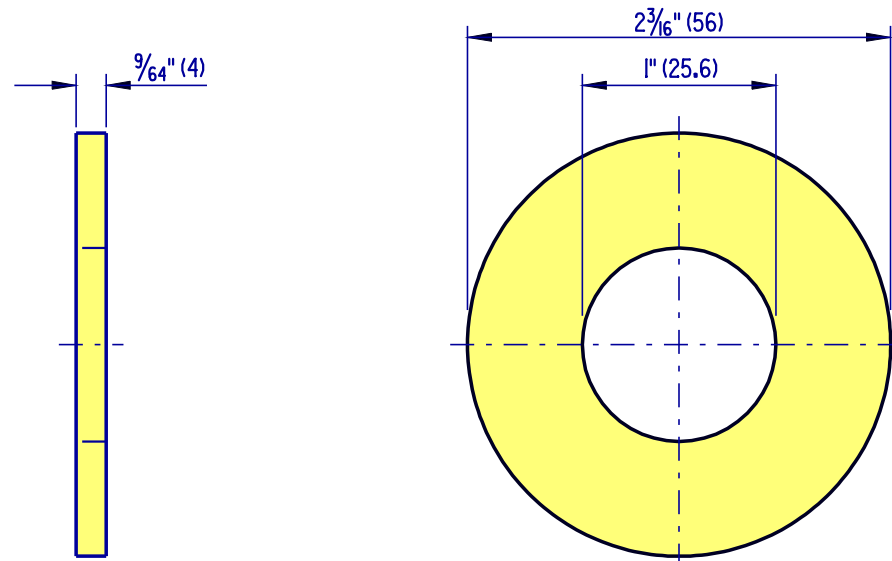
HIGH-STRENGTH STRUCTURAL HEX NUT



5/8" (16) STEEL WASHER

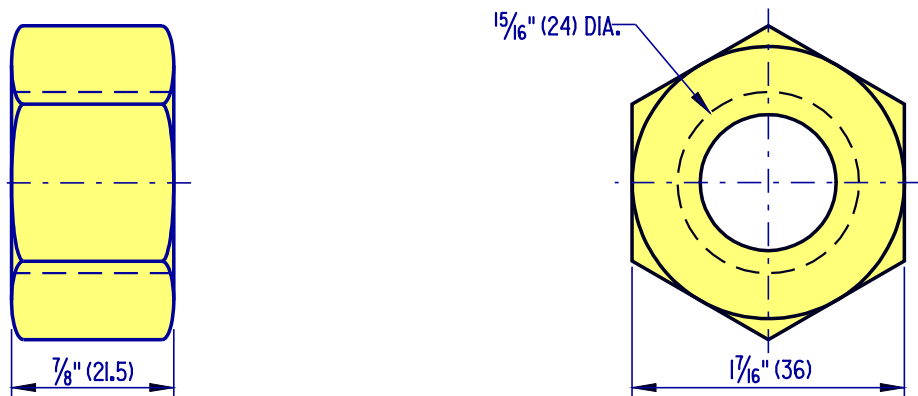
NOTE : DIMENSION FOR WASHER THICKNESS IS APPROXIMATE BASE METAL THICKNESS.





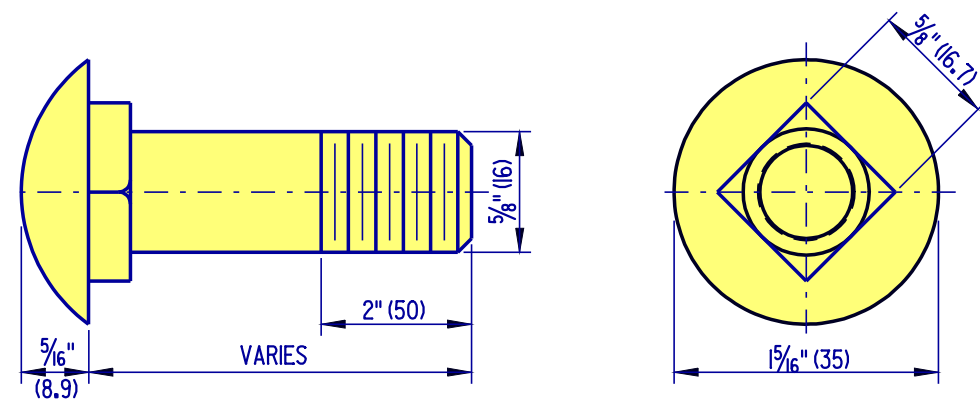
STEEL WASHER

NOTES : 1. FOR USE WITH SWAGED CABLE ASSEMBLAGE.
2. DIMENSION FOR WASHER THICKNESS IS APPROXIMATE BASE METAL THICKNESS.



$1\frac{5}{16}$ " (24) HEX NUT

NOTE : FOR USE WITH SWAGED CABLE ASSEMBLAGE.



$\frac{5}{8}$ " (16) CARRIAGE BOLT



DELAWARE
DEPARTMENT OF TRANSPORTATION

HARDWARE

STANDARD NO.

B-13 (2004)

SHT. 12

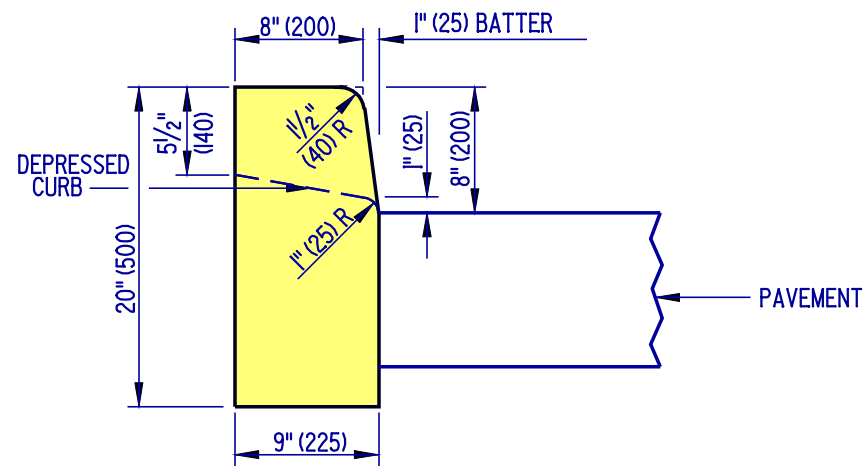
OF 13

APPROVED

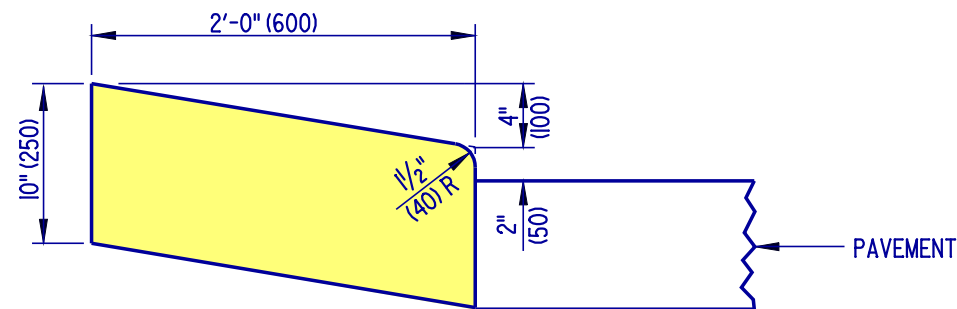
Carolann Wicks
CHIEF ENGINEER
DATE 1/10/05

RECOMMENDED

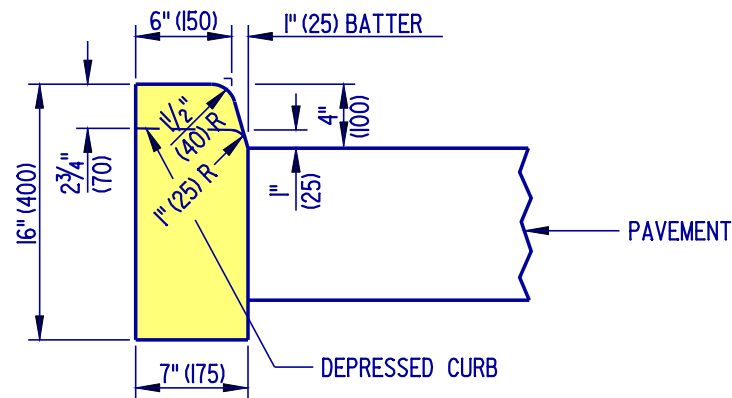
Dennis M. O'Flaherty
DESIGN ENGINEER
DATE 1/3/05



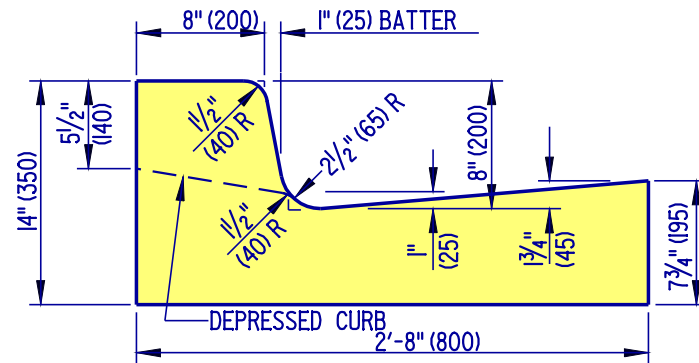
P.C.C. CURB
TYPE 1



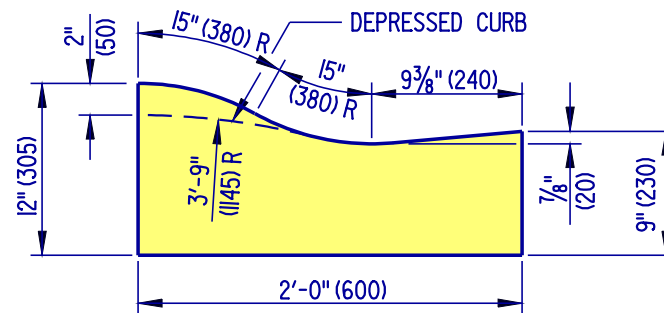
P.C.C. CURB
TYPE 2



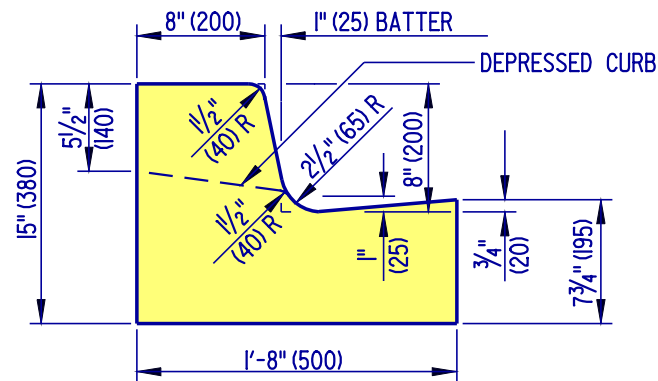
P.C.C. CURB
TYPE 3



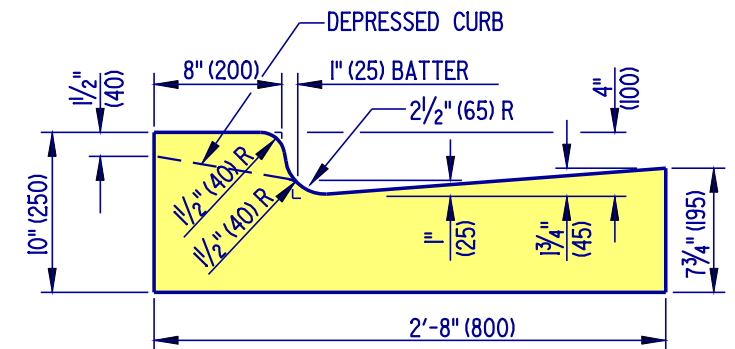
INTEGRAL P.C.C. CURB AND GUTTER
TYPE 1



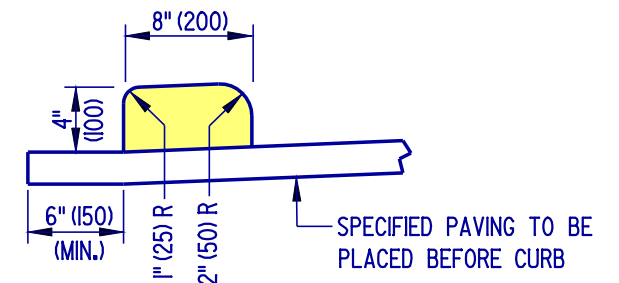
INTEGRAL P.C.C. CURB AND GUTTER
TYPE 2



INTEGRAL P.C.C. CURB AND GUTTER
TYPE 3



INTEGRAL P.C.C. CURB AND GUTTER
TYPE 4



HOT-MIX, HOT LAID BITUMINOUS
CONCRETE CURB

NOTES:

1. WHEN INTEGRAL P.C.C. CURB AND GUTTER IS PLACED ADJACENT TO PORTLAND CEMENT CONCRETE PAVEMENT, CONSTRUCT THE JOINT AS PER THE LONGITUDINAL JOINT SEALANT DETAIL ON STANDARD P-2, SHEET 3 OF 5. USE APPROVED JOINT FILLER TO SEAL. WORK TO BE PAID UNDER RESPECTIVE CURB AND GUTTER ITEM.
2. DEPRESS CURB AT DRIVEWAYS AS DETAILED.
3. DEPRESS CURB FLUSH WITH PAVEMENT AT CURB RAMPS. MAXIMUM SLOPE OF DEPRESSED CURB IS 12:1.



DELAWARE
DEPARTMENT OF TRANSPORTATION

P.C.C. CURB, P.C.C. CURB & GUTTER, AND HOT-MIX CURB

STANDARD NO. C-1 (2004)

SHT. 1 OF 1

APPROVED *Carolann Wick* 1/10/05
CHIEF ENGINEER DATE

RECOMMENDED *Dennis M. O'Flaherty* 1/13/05
DESIGN ENGINEER DATE